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OF THE

WASHBURN OBSERVATORY

OF THE

UNIVERSITY OF WISCONSIN.

VOL. VIII.

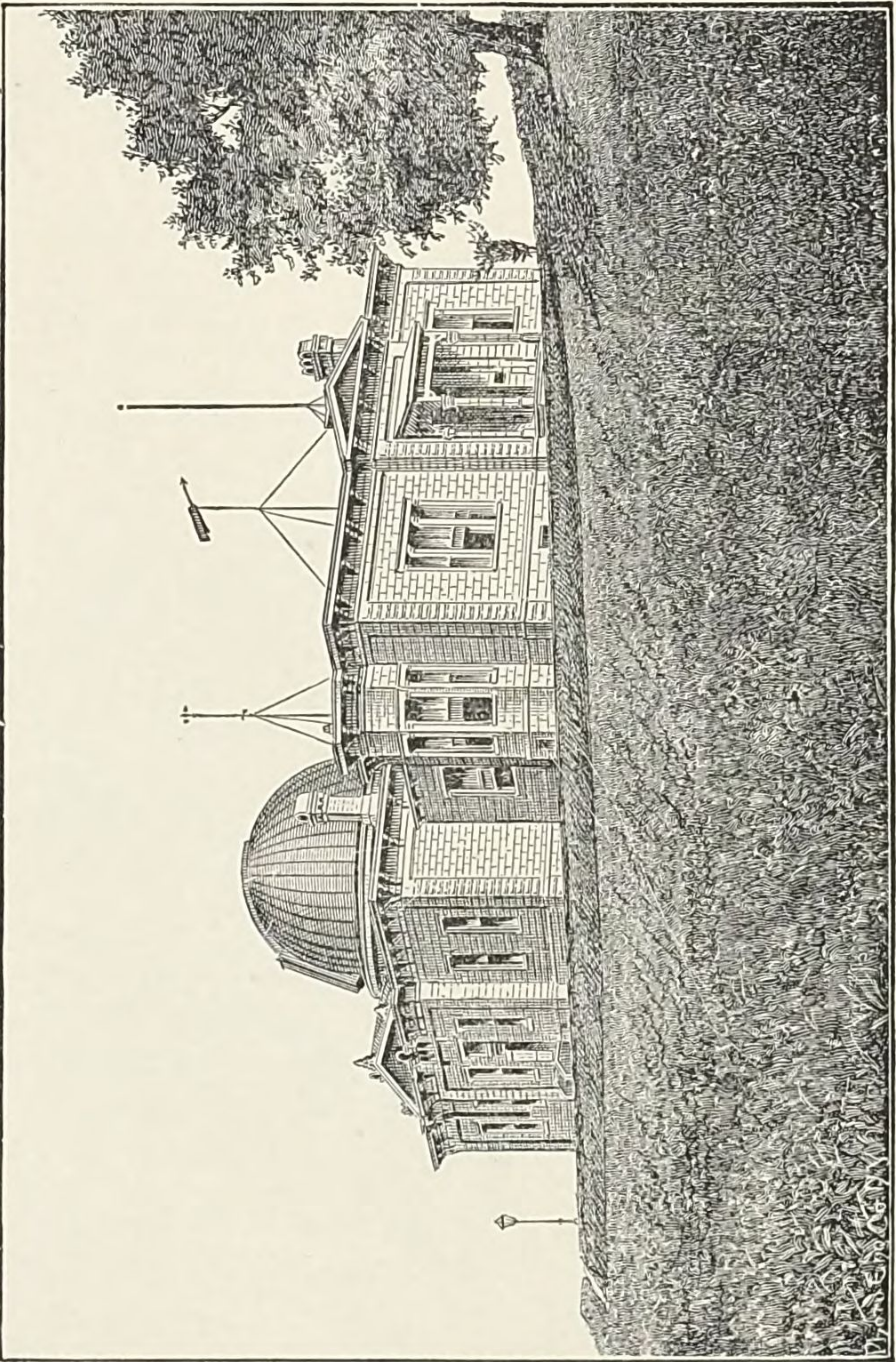
MERIDIAN CIRCLE OBSERVATIONS,

1887—1892.

MADISON, WIS. :

DEMOCRAT PRINTING COMPANY, STATE PRINTER.

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VOL. VIII.

RESULTS OF MERIDIAN CIRCLE OBSERVATIONS,
1888-1890,

BY PROF. S. J. BROWN, U. S. N.,
ALBERT S. FLINT AND H. V. EGBERT.

WITH AN INTRODUCTION BY
GEORGE C. COMSTOCK,
DIRECTOR.

MADISON, WIS.:
DEMOCRAT PRINTING COMPANY, STATE PRINTERS,
1892.

The Washburn Observatory,

FOUNDED BY

Cadwallader C. Washburn,

Born 1818; Died 1882.

INTRODUCTION.

BY GEORGE C. COMSTOCK.

When I assumed charge of the Washburn Observatory in the summer of 1887 I found its staff inadequate to the simultaneous prosecution of observations with the equatorial telescope and the meridian circle, and since my personal preference was for work with the former instrument it appeared that the meridian circle must be idle if not employed by some person not then connected with the observatory. Previous to my appointment the Board of Regents of the University had adopted the following resolutions :

WHEREAS, The Board of Regents of the University of Wisconsin have been informed that a change in the location of the U. S. Naval Observatory at Washington is contemplated in the immediate future and that some interruption of observation and disturbance of instrumental constants will inevitably accompany this, and

WHEREAS, They have reason to believe that free access to some other well appointed observatory may prove of important service to the staff of that observatory in certain contingencies if not in the regular course of work, therefore be it

Resolved, That the President of the University be, and he is hereby authorized to tender to the staff of the U. S. Naval Observatory the free use of the instruments of the Washburn Observatory during such prospective interruption of work and for such time before and after the actual interruption as may be needful to carry on any series of observations that may be desired incidental thereto, and which shall not be incompatible with the regular work of the Washburn Observatory.

In accordance with the policy thus outlined and upon my recommendation an invitation was extended through the authorities of the Naval Observatory to Prof. S. J. Brown, U. S. N., to conduct here a series of observations which had been planned for the Repsold meridian circle at Annapolis.

Authority for the transfer of his projected work to this observatory having been obtained from the Secretary of the Navy, Prof. Brown came to Madison in October, 1887, and remained until October, 1890, when he was recalled to Washington by orders from the Navy Department. Prof. Brown having thus become the guest of the observatory it seems proper that the whole responsibility and credit for the work thus undertaken should rest with him and the gentlemen who were necessarily associated with him in its prosecution — Assistant Astronomers H. V. Egbert and A. S. Flint of the staff of the observatory. I therefore abstained from all supervision of the work and avoided a knowledge of its details in the expectation that it would be completed and

published without further intervention on my part. The observing program was completed in the spring of 1890 but its reduction was far from complete and the discussion of results not even commenced at the time of Prof. Brown's recall to Washington. The reductions have been completed mainly by Mr. Flint, but the discussion of the work and the preparation of an introduction have fallen to me. Although I have been assisted in this latter task by memoranda and suggestions from Prof. Brown, I am conscious of the defects which must attend a description of observations with the details of which I was not personally conversant, and I greatly regret that the work could not have been completed and published in accordance with the original plan which was frustrated by Prof. Brown's unexpected recall.

The original plan of work contemplated the determination of the positions of the Zusatzsterne of Auwer's Fundamental Catalog in terms of the Hauptsterne. Five observations of each Zusatzstern, Nos. 337 to 540 of the Berliner Jahrbuch, were to be made in each position of the circle, and for circumpolar stars of the list five additional observations in each position of the circle were to be made below the pole. For the determination of the right ascensions of these stars the tabular positions of the stars Nos. 1 to 336 of the Berliner Jahrbuch were to be assumed as fundamental, and the clock corrections and instrumental constants m and n (Bessel) were to be derived from these stars. Absolute declinations of the Zusatzsterne and of as many Hauptsterne as practicable were to be obtained. The program thus outlined has been substantially completed, but some modifications which seemed to become necessary during the course of the work have been introduced into it and will be subsequently discussed.

A supplementary series of observations was undertaken by Mr. A. S. Flint in the fall and winter of 1891-'92 for the purpose of filling in certain southern Zusatzsterne which had been omitted from the original observing list. The instrument employed, the Repsold meridian circle, has been fully described in Vols. II.—V., Publications W. O. to which reference may be made for the details of its construction and arrangement. The only alterations of consequence which have been made in the instrument since the publication of these volumes are the adjustment of the microscopes, made at the beginning of Prof. Brown's work, so that the same divisions of the circle appear under the microscopes in observations of the nadir, both Circle W. and Circle E.; and the substitution of a system of spider line transit threads in place of the glass plate formerly employed. This change was made June 29, 1888.

One other change in the surroundings of the instrument should be noted here, although it is more fully discussed in connection with the determination of the latitude. On warm and still nights the "seeing" was found to be much worse near the zenith than at other parts of the meridian, an effect which Prof. Brown attributed to an outflow of heated air from beneath the roof of the transit room through the observing slit. The sides of the slit from the ceiling of the room to the roof instead of being closed were covered with wire netting which permitted a free efflux of air into the slit, and to check this outflow a lining of heavy paper was attached to the netting sometime during the summer of 1888, although no record seems to have been made of the exact date at

which this was done. Memoranda, however, indicate that after the introduction of the paper the "seeing" for zenith stars was considerably improved.

A certain number of observations were made by Prof. Brown during November and December, 1887, but these were regarded by him as practice work for the purpose of familiarizing himself with the instrument and its surroundings. The real beginning of the observations may be placed in April, 1888, and from this time until September, 1889, the work was prosecuted jointly by Prof. Brown and Mr. Egbert, substantially in accordance with the following program: The observing room was opened and thoroughly ventilated some two or three hours before the first star of the evening's program was to be observed. The night's work began with a determination of the inclination of the axis by means of the spirit level and an observation of the nadir which was usually so arranged as to furnish a determination of the collimation constant. A similar determination of nadir and level was made at the end of each night's work and whenever practicable one or more similar determinations were inserted during its progress in order to control the constants of the instrument and furnish additional data for interpolating their values. The program for the star observations was so arranged that two or more clock stars and a polar star were observed near the beginning and end of each night's work and other fundamental stars were observed during the night as frequently as possible. On the average a clock star was observed once every fifteen minutes throughout the night's work.

The observer at the eye end of the instrument made the settings of the telescope, tapped the chronograph key for the times of the star's transit, usually over eleven threads, and with the declination micrometer made two or more bisections of the star at parts of the field symmetrically disposed with respect to the middle threads. The second observer read and recorded the microscopes, recorded the readings of the declination micrometer which were called to him together with a symbol representing the distance from the middle thread at which the bisection was made, and he was responsible for making the meteorological observations at the proper times. The thermometer was read on the average every half hour, the barometer less frequently. An observation is always designated as made by the observer at the eye end of the telescope and the observers B and E took this position on alternate nights. After Mr. Egbert's departure the microscopes were read by Mr. Flint and all of the observations at the telescope were made by Prof. Brown up to the time of his departure from the observatory. The supplementary series of observations made by Mr. Flint alone in 1891-'92 was conducted as nearly as possible in accordance with the methods adopted by Prof. Brown and in their reduction and discussion these observations have been treated as entirely homogeneous with the observations of 1888-'90 save for such personal differences as may affect the observations of different observers.

The following memoranda in regard to methods of observing have been prepared in great part from data furnished by Prof. Brown:

Observations of Stars: In general, and with few exceptions, both transits and bisections in declination were made symmetrically with respect to the

middle thread and the circle readings were coincident in time with the micrometer pointings. In case of marked difference between the individual readings of the declination micrometer the circle was always read a second time to control any possible change in the position of the telescope. Occasionally, when two or more stars culminating at nearly the same time were to be observed, the preceding star was observed in the first half, and the following star in the second half of the field, and of necessity the circle readings were not contemporaneous with the bisections. The correction for the inclination of the threads of the declination micrometer required in such cases was derived from symmetrical observations of equatorial stars.

In order to avoid the delay which would be caused by observing transits of close circum-polar stars over the ordinary transit threads frequent use was made of the R. A. micrometer. Transits observed over the micrometer thread, as well as over the other threads, were always recorded upon the chronograph and were reduced to the middle transit thread by means of the micrometer readings at transit and in coincidence with the middle thread.

In order to eliminate error of runs of the microscopes the circle settings were always so made that when the head of the microscopes read 0 a division of the circle was under or very near the threads of the microscope. Since the circle is divided to 2' this plan secures a very minute motion of the screws of the microscopes by requiring a motion of the telescope micrometer which may amount to 1' on either side of the mean position of the thread.

Observations of the Nadir: The telescope having been directed to the nadir, and clamped at the reading $125^{\circ} 28'$ the observer made with the declination micrometer ten bisections of the space between the reflected images of the two close micrometer threads, using alternately the north and south threads for the bisections. Simultaneously with these pointings the assistant read the circle twice and made the record, both of his microscopes and of the micrometer readings which were called to him. Since this mode of observation determines the nadir reading for a fictitious thread situated midway between the parallel threads of the micrometer, while the star observations were always made upon the thread nearest the micrometer head, half the distance between the threads was applied as a correction to the observed nadir to reduce it to the thread employed in the observations. This correction remained so nearly constant throughout the whole series of observations that the mean result from the observations of several months was usually employed for the reduction of all the observations included within the period from which it was deduced.

On account of greater convenience of manipulation of the micrometer the observer always stood on the north side of the telescope for nadir observations Circle W., and on the south side for observations Circle E. No special investigation has been made to determine whether a systematic difference depending upon the position of the observer affects the nadirs. Such investigations made in previous years for three different observers have furnished no certain indication of such differences, and any such error, if it is found in the present

series, will be taken into account by the discussion of the systematic difference between the declinations obtained Circle W. and Circle E.

Inclination of the Axis: The level constant b was not used in the reduction of the observations, but its value was determined on each night by means of the spirit level as a control upon the other constants of the instrument. The hanging level provided by the makers of the instrument performed its function in an exceedingly satisfactory manner. A single determination of b usually consisted of two reversals of the level, its successive positions with respect to the vertical telescope tube being S., N., N., S. giving two independent values of b .

Collimation: Three different methods of obtaining the collimation constant were employed. A. By opposing collimators, substantially as set forth in Vol. II., Publications W. O. This method is not entirely satisfactory on account of the difficulty in setting the threads of the collimators in coincidence and it was therefore supplemented by; B.: Observations of the nadir in connection with the indications of the spirit level. This seems upon the whole a more satisfactory method than A, and is especially convenient on account of the small amount of additional labor which it imposes upon the observers. C.: The great facility with which the circle can be reversed has led the observers to rely in great part upon observations of both collimators in both positions of the circle. These observations were usually made from three to five hours before the beginning of a night's work, thus allowing the parts of the instrument time to recover their equilibrium before the regular observations were commenced, but it appears doubtful if this equilibrium is wholly obtained, and in view of possible injurious effects upon the stability of the instrument this mode of determining the collimation does not seem an advantageous one.

If we represent the values of the collimation constant derived by these three methods by c_A , c_B , c_C , respectively, we may, from a comparison of simultaneous determinations by different methods, ascertain the systematic differences between them. Mr. Flint has collated all of the available data and obtained the following table of mean results in which n represents the number of days upon which comparisons of different methods were made:

Methods.	Obs'd Δc .	n	Adjusted Δc .
$c_A - c_B$	^S +0.004	13	^S +0.0045
$c_B - c_C$	+ .003	16	+ .0034
$c_C - c_A$	- .009	6	- .0079

The quantities in the last column have been obtained by adjusting the observed data so that it shall satisfy the condition.

$$(c_A - c_B) + (c_B - c_C) + (c_C - c_A) = 0.$$

The mean of the results furnished by the three methods seems entitled to more

confidence than that obtained by any single method, and adopting this mean as a normal result I find as the corrections required by the several methods

$$\Delta c_A = -0.0041^S \quad \Delta c_B = +0.0004^S \quad \Delta c_C = +0.0038^S.$$

These quantities are of the same order of magnitude as their probable errors and have *not* been applied to the observed collimations. A comparison of the residuals furnished by the 35 determinations of the difference between two methods of determining the collimation gives as the probable error of a single such determination $r = \pm 0.0094$. The small value of the systematic correction derived for method B, which depends upon the readings of the spirit level, confirms the excellence of the level determinations and tends to show their freedom from systematic error.

The table of values of the instrumental constants at the end of this introduction, indicates the method by which the several values of c there tabulated were obtained.

Thread Intervals: For the reduction of observations made prior to June 29, 1888, the adopted values of the thread intervals (glass plate) are those given at p. 29, Vol. IV. Publications W. O. After the insertion of the spider threads their equatorial intervals were determined from transits of stars as follows:

TABLE OF THREAD INTERVALS.

$A_1 = 42.409^S$	$G_3 = 42.552^S$
$A_2 = 40.358$	$G_2 = 40.565$
$A_3 = 33.427$	$G_1 = 38.438$
$B_1 = 30.213$	$F_4 = 30.528$
$B_2 = 28.196$	$F_3 = 23.580$
$B_3 = 26.165$	$F_2 = 26.402$
$B_4 = 24.360$	$F_1 = 24.402$
$C_1 = 16.156$	$E_3 = 16.355$
$C_2 = 14.213$	$E_2 = 14.195$
$C_3 = 12.444$	$E_1 = 12.194$
$D_1 = 3.985$	$D_7 = 4.102$
$D_2 = 3.085$	$D_6 = 3.062$
$D_3 = 1.973$	$D_5 = 2.098$
$D_4 = 0.000$	$D_4 = 0.000$

When the circle is east a star above pole crosses the threads in the order A, B, C, G. When the circle is west the order of the lettering is reversed and the thread which is designated G_3 in the above table becomes A_1 , etc. This nomenclature is of importance only in connection with the reduction to the meridian for the declination observations. The hour angle of the star at the instant of its bisection was determined from its position with respect to the transit threads and was called to the assistant as a part of the record of the observation. With rare exceptions the bisections were made at the instant

of a star's transit over some thread *e. g.* B₁, and the reduction to the meridian is furnished by the formula

$$\text{Red'n} = \tan \delta \frac{2 \sin^2 \frac{1}{2} i}{\sin 1''}$$

where *i* is the equatorial interval of the thread from D₄.

In the declination observations made prior to June 29, 1888, the bisections of the star were made by bringing it midway between a pair of parallel threads, but commencing with June 30, 1888, the bisections were made with the single thread nearest the micrometer head. This change of method required in all the subsequent work the application to the observed nadir point of a correction amounting to the half distance between the declination threads. The adopted values of this correction are as follows, the value placed opposite each date being employed until the next following date:

			"	
1888	June	30	4.73	
	July	2	5.53	New thread inserted.
	Dec.	29	5.50	
1889	March	19	5.49	
	April	30	5.48	
1890	Sept.	..	5.50	
1891	Sept.	12	5.62	
	Sept.	23	5.55	

Value of a Revolution of the Micrometer Screws: All of the declination observations have been reduced with a constant value of a revolution of the declination screw, 64."596, derived by Prof. Brown in the early part of his work. This constant was redetermined by myself in January, 1891, in connection with the investigation of the progressive errors of another micrometer screw and I found 64."596 ± 0."0038, in exact agreement with the adopted value.

The value of a revolution of the R. A. micrometer is required only for determinations of the collimation and the occasional observation of close polar stars. It has been assumed equal to 4."2937.

The Hanging Level: The results of previous determinations of the value of a division of this level have been adopted; $\frac{1}{2}$ div. = 0."0415.

Flexure: An investigation of the flexure constants of the instrument may be found in Vol. VI, Part 4, Publications W. O. The adopted flexure correction corresponding to any declination, δ , is

$$\Delta f = \pm 0."38 \sin (\varphi - \delta) + 0."09 \cos (\varphi - \delta)$$

the upper sign for Circle W. and lower sign for Circle E. For stars below pole the declination must be reckoned through the pole, greater than 90°. Although each of these coefficients has been determined by three independent methods which furnish fairly accordant results they appear to me to require further investigation, which I purpose making as soon as the pressure of other work will permit.

Division Errors of the Circle: It was a part of the original programme of work that the errors of graduation of each diameter of the circle, 5,400 in num-

ber, should be determined, and a continuous series of observations for this purpose was maintained up to the time of Prof. Brown's departure from the Observatory. The method adopted for this investigation was that of Kaiser, which is set forth in detail in the second volume of the *Leiden Annalen*. In the year 1884 while in the service of the trustees of the James Lick Trust I had prepared a schedule of observations for the determination of the division errors of the Lick meridian circle, and at my request the director of the Lick Observatory kindly placed at my disposal a copy of this schedule which was employed by Prof. Brown and his assistants in the arrangement of their work.

Since it is impossible to refer each diameter of the circle directly to a single fundamental diameter with respect to which its error is to be determined, it becomes necessary to classify the several diameters with respect to the more or less mediate character of their reference to this diameter. Adopting that diameter of the circle which is numbered 0° as the fundamental diameter, those numbered 60° , 90° , 120° are designated as of the first order, since their errors are determined immediately without the intervention of any other lines. Diameters whose errors depend upon the fundamental diameter together with diameters of the first order are designated as of the second order, etc., the increasing degrees of complexity in the relation to the fundamental diameter being represented by higher orders. Since errors in the determination of the division corrections for the lower order diameters will be introduced into the determination of higher order diameters, it is evident that the former class of determinations must be executed with greater precision than the latter, and due regard has been paid to this condition in assigning the number of independent determinations, n , to be made for determining the corrections to diameters of the different orders. These numbers have been so assigned that assuming the probable error of a single microscope reading to be $\pm 0''.16$ the finally adopted values of the division corrections of the diameters of the highest order will be affected with probable errors of an eighth of a second.

The following is the schedule, above referred to, slightly modified to adapt it to the smaller dimensions of the Madison instrument which does not permit the setting of the microscopes at so small an angular distance as is feasible in the case of the larger instrument of the Lick Observatory. The first column shows the order of the diameter under investigation; the second the angular distance at which the microscopes are set; the third the lines limiting the arc which is to be subdivided; the fourth the method employed for subdividing the arc, bisection, trisection, quinquisection; the fifth the number of times the observations are to be repeated; and the sixth the diameters whose division corrections are thus determined:

SCHEDULE FOR DETERMINING THE DIVISION CORRECTIONS OF A CIRCLE
DIVIDED TO 2'.

Order	Mic. Dist.	Terminal Lines.	Sub- division	<i>n</i>	Diameters De- termined.	Order	Mic. Dist.	Terminal Lines.	Sub- division	<i>n</i>	Diameters De- termined.
I.	90	0 180	B.	36	90	III.	95	120 45	T.	15	35 130
	60	0 180	T.	48	60 120		95	135 60	T.	15	50 145
II.	60	90 270	T.	14	30 150	IV.	25	0 75	T.	21	25 50
	30	120 180	B.	9	150		25	0 50	B.	13	25
	30	0 60	B.	9	30		25	90 140	B.	13	115
	20	0 60	T.	14	20 40		25	130 180	B.	13	155
	20	120 180	T.	14	140 160		25	105 180	T.	21	130 155
	40	60 180	T.	14	100 140		35	110 180	B.	13	145
	40	0 120	T.	14	40 80		35	120 225	T.	21	10 155
	45	0 90	B.	18	45		55	60 225	T.	21	115 170
	45	90 180	B.	18	135		55	0 165	T.	21	55 110
	80	0 240	T.	14	80 160		55	15 180	T.	21	70 125
	80	120 360	T.	14	20 100		55	0 110	B.	13	55
							55	70 180	B.	13	125
III.	75	120 270	B.	11	15		65	0 130	B.	13	65
	75	90 240	B.	11	165		65	0 195	T.	21	65 130
	75	0 150	B.	11	75		65	45 240	T.	21	110 175
	75	30 180	B.	11	105		65	120 315	T.	21	5 70
	75	0 225	T.	15	75 150		85	0 255	T.	21	85 170
	90	120 210	B.	11	165		85	105 360	T.	21	10 95
	90	150 240	B.	11	15		35	0 70	B.	13	35
	105	0 210	B.	11	105		85	0 170	B.	13	85
	85	90 260	B.	11	175		85	10 180	B.	13	95
	85	100 270	B.	11	5						

At this point the division corrections of all of the 5° diameters have been determined and for the determination of corrections to the remaining diameters Kaiser's second method is adopted and applied as follows :

Order.	Mic. Dist.	Terminal Lines.	Sub-division	n	Diameters Determined
V.	181 0	$x^\circ, x + 5^\circ$	Q.	10	All 1° Diam.
VI.	180 20	$x, x + 1$	T.	5	All $20'$ Diam.
VII.	180 10	$x, x + 0 20'$	B.	5	All $10'$ Diam.
VIII.	180 2	$x, x + 0 10'$	Q.	3	All $2'$ Diam.

The number of microscope pointings required for the complete execution of the program as originally designed is as follows :

For integral degree diameters.....	27,544
For integral $10'$ diameters.....	79,200
For integral $2'$ diameters.....	155,520
Total.....	262,264

The complete execution of this program has not been found practicable, but the correction to every $10'$ diameter of the circle has been independently determined by two different observers. The corrections to all of the diameters corresponding to integral degrees of the numeration of the circle have been determined in accordance with the schedule and with exception of the diameters 45° , 60° , 90° , 120° , and 135° they have also been independently determined by subdivision of arcs limited by terminal lines other than those adopted in the schedule, thus furnishing two nearly independent determinations of the division correction for each degree diameter. In the determination of the corrections to the $10'$, $20'$, $30'$, $40'$, and $50'$ diameters the schedule has *not* been followed but the values of the corrections have been found from the bisection or trisection of arcs whose terminal lines are indicated in the following table :

TERMINAL LINES FOR $10'$ DIAMETERS.

Diameter.	Terminal Lines.		Sub-division.
$x + 10$	$150 + x$	$210 20 + x$	B.
20	$162 + x$	$217 0 + x$	T.
30	$158 + x$	$203 0 + x$	B.
40	$144 + x$	$199 0 + x$	T.
50	$155 + x$	$206 40 + x$	B.

It will be observed that the six 10' diameters corresponding to any degree of the circle are referred to the fundamental diameter through very different series of determinations and that if the mean of six consecutive 10' diameters at any part of the circle is taken as representing the systematic part of the division error the adopted value will be in great part freed from the effect of accumulated error in the determinations.

The following table of Observed Division Corrections requires no further explanation than the statement that the column of Individual Results gives for the integral degree diameters the several independently determined values above referred to. The arithmetical mean of their determinations is in general adopted as the definitive result for the diameter to which they pertain but in a few cases where the determinations seemed of very different degrees of precision, weights have been introduced.

OBSERVED DIVISION CORRECTIONS.

R°	0'	10'	20'	30'	40'	50'	Individual Results.	
0	0.00	+0.05	+0.18	+0.11	-0.30	+0.15	.....	.....
1	+ .16	- .17	+ .04	+ .03	+ .33	+ .10	+0.14	+0.18
2	+ .18	- .15	+ .04	- .04	+ .12	+ .18	+ .14	+ .22
3	+ .12	- .18	- .06	- .16	- .19	- .21	+ .13	+ .10
4	- .31	- .09	+ .01	+ .27	+ .05	+ .25	- .52	- .11 - .31
5	-0.04	-0.22	-0.02	-0.07	-0.17	+0.03	+0.07	-0.14
6	- .06	- .02	+ .22	+ .18	- .09	- .04	- .02	- .09
7	+ .15	- .08	+ .01	+ .02	- .25	- .12	+ .21	+ .08
8	- .26	- .20	+ .08	.00	- .15	- .01	- .24	- .29
9	+ .06	+ .10	+ .05	+ .16	+ .04	+ .19	+ .05	+ .06
10	-0.07	-0.17	-0.04	-0.16	+0.24	-0.17	-0.12	-0.02
11	- .24	- .12	+ .02	- .06	+ .10	- .18	- .16	- .32
12	- .20	- .44	+ .02	+ .05	- .22	- .06	- .16	- .25
13	- .19	- .35	- .21	+ .14	- .14	+ .04	- .09	- .29
14	- .12	- .20	+ .05	+ .23	+ .02	+ .03	- .05	- .20
15	-0.10	0.00	-0.05	+0.21	+0.05	+0.17	-0.05	-0.15
16	- .10	- .23	- .39	- .02	+ .04	- .04	- .05	- .16
17	+ .10	+ .08	+ .28	+ .63	+ .44	+ .40	+ .06	+ .13
18	+ .23	+ .85	+ .55	+ .63	+ .72	+ .60	+ .22	+ .24
19	+ .24	+ .33	+ .21	+ .49	+ .44	+ .40	+ .30	+ .17
20	+0.22	+0.22	0.00	-0.02	+0.66	+0.20	+0.32	+0.12
21	+ .28	+ .38	+ .35	+ .36	+ .39	+ .18	+ .25	+ .32
22	+ .34	+ .59	+ .63	+ .62	+ .32	+ .23	+ .28	+ .40
23	+ .34	+ .31	+ .13	+ .06	.00	- .02	+ .33	+ .34
24	+ .22	+ .28	.00	+ .12	+ .02	+ .04	+ .31	+ .13
25	-0.31	+0.11	+0.11	-0.02	-0.20	0.00	-0.32	-0.30
26	+ .18	+ .11	- .04	- .01	+ .04	.00	+ .16	+ .19
27	+ .10	+ .17	+ .14	- .02	+ .21	- .03	+ .15	+ .06
28	+ .33	+ .30	+ .22	+ .17	+ .28	+ .10	+ .41	+ .25
29	+ .36	+ .21	- .07	+ .12	+ .21	+ .14	+ .18	+ .55

OBSERVED DIVISION CORRECTIONS.

R°	0'	10'	20'	30'	40'	50'	Individual Results.	
	"	"	"	"	"	"		
30	+0.12	+0.44	+0.18	+0.13	+0.26	+0.14	+0.17	+0.07
31	+ .18	+ .19	+ .02	+ .26	+ .10	+ .08	+ .18	+ .18
32	+ .34	+ .20	+ .12	+ .14	+ .26	+ .28	+ .30	+ .37
33	+ .10	+ .34	+ .38	+ .34	+ .33	+ .32	— .09	+ .28
34	+ .27	+ .07	.00	— .16	+ .01	— .09	+ .21	+ .33
35	+0.30	+0.27	—0.16	+0.23	+0.21	+0.04	+0.32	+0.27
36	+ .40	+ .10	+ .04	+ .20	+ .34	— .08	+ .29	+ .52
37	+ .38	+ .09	— .01	+ .18	+ .16	— .12	+ .31	+ .56
38	+ .27	— .19	— .03	+ .12	— .02	+ .04	+ .16	+ .38
39	+ .38	+ .14	+ .20	+ .27	+ .09	+ .14	+ .23	+ .53
40	+0.39	+0.17	+0.44	+0.31	—0.05	+0.17	+0.42	+0.37
41	+ .37	+ .08	— .05	+ .32	+ .16	+ .27	+ .40	+ .34
42	+ .18	— .07	— .15	+ .26	+ .08	+ .26	+ .08	+ .29
43	+ .16	+ .26	+ .14	+ .34	+ .26	+ .20	+ .08	+ .25
44	+ .33	+ .22	— .02	+ .22	+ .28	+ .21	+ .34	+ .32
45	+0.37	+0.25	+0.46	+0.27	+0.62	+0.69	.....	.....
46	+ .36	+ .66	+ .74	+ .47	+ .46	+ .80	+0.29	+0.42
47	+ .37	+ .67	+ .65	+ .44	+ .36	+ .48	+ .32	+ .42
48	+ .36	+ .62	+ .86	+ .52	+ .36	+ .68	+ .42	+ .31
49	+ .44	+ .50	+ .74	+ .45	+ .74	+ .51	+ .58	+ .31
50	+0.61	+0.62	+1.00	+0.54	+0.47	+0.62	+0.66	+0.56
51	+ .48	+ .54	+ .83	+ .43	+ .66	+ .57	+ .64	+ .33
52	+ .77	+ .84	+ .65	+ .48	+ .51	+ .78	+ .75	+ .79
53	+ .52	+ .69	+ .88	+ .65	+ .64	+1.09	+ .48	+ .56
54	+ .86	+ .96	+1.37	+ .86	+ .56	+ .82	+ .65	+1.06
55	+1.17	+0.76	+1.11	+0.82	+0.81	+0.98	+1.20	+1.14
56	+ .84	+ .81	+1.24	+ .94	+ .62	+1.02	+ .85	+ .84
57	+ .64	+ .58	+ .81	+ .46	+ .53	+ .73	+ .65	+ .63
58	+ .56	+ .42	+ .83	+ .53	+ .32	+ .61	+ .56	+ .55
59	+ .47	+ .49	+ .85	+ .85	+ .63	+ .57	+ .50	+ .44

OBSERVED DIVISION CORRECTIONS.

R°	0'	10'	20'	30'	40'	50'	Individual Results.	
	"	"	"	"	"	"		
60	+0.62	+0.56	+0.67	+0.45	+0.41	+0.40	.....	.....
61	+ .52	+ .35	+ .38	+ .54	+ .19	+ .21	+0.52	+0.53
62	+ .54	+ .38	+ .28	+ .42	+ .35	+ .34	+ .54	+ .53
63	+ .42	+ .32	+ .47	+ .32	+ .04	+ .11	+ .30	+ .53
64	+ .48	+ .32	+ .37	+ .53	+ .54	+ .83	+ .35	+ .60
65	+0.51	+0.50	+0.50	+0.52	+0.51	+0.72	+0.51	+0.50
66	+ .48	+ .51	+ .57	+ .48	+ .50	+ .52	+ .46	+ .51
67	+ .42	+ .31	+ .10	+ .44	+ .48	+ .54	+ .34	+ .51
68	+ .23	+ .28	+ .12	+ .02	+ .11	+ .26	+ .21	+ .25
69	+ .28	+ .16	- .14	- .02	+ .29	+ .44	+ .32	+ .25
70	+0.17	+0.50	+0.57	+0.44	+0.70	+0.77	-0.03	+0.37
71	+ .27	+ .52	+ .56	+ .64	+ .54	+ .56	+ .28	+ .26
72	+ .50	+ .83	+ .73	+ .48	+ .95	+ .78	+ .65	+ .35
73	+ .60	+ .61	+ .78	+ .53	+ .83	+ .54	+ .78	+ .42
74	+ .49	+ .44	+ .84	+ .78	+ .72	+ .55	+ .67	+ .31
75	+0.63	+1.06	+0.89	+0.87	+0.86	+1.12	+0.66	+0.60
76	+ .85	+1.02	+1.01	+1.03	+ .87	+ .76	+ .95	+ .75
77	+ .56	+ .75	+ .73	+ .61	+ .63	+ .66	+ .62	+ .49
78	+ .42	+ .46	+ .64	+ .30	+ .45	+ .78	+ .51	+ .32
79	+ .56	+ .55	+1.17	+ .83	+ .76	+ .77	+ .66	+ .45
80	+0.59	+0.26	+0.52	+0.56	+0.44	+0.56	+0.60	+0.58
81	+ .50	+ .41	+ .60	+ .26	+ .41	+ .49	+ .54	+ .47
82	+ .50	+ .88	+1.14	+ .96	+ .97	+ .61	+ .50	+ .50
83	+ .75	+ .92	+1.23	+ .98	+ .90	+ .86	+ .74	+ .84
84	+ .68	+1.01	+1.04	+ .68	+ .94	+ .74	+ .67	+ .68
85	+0.52	+0.78	+0.80	+0.65	+0.43	+0.68	+0.53	+0.52
86	+ .52	+ .48	+ .47	+ .70	+ .18	+ .16	+ .54	+ .51
87	+ .40	+ .39	+ .51	+ .52	+ .23	+ .51	+ .40	+ .39
88	+ .42	+ .23	+ .25	+ .33	+ .12	+ .19	+ .32	+ .53
89	+ .34	+ .19	+ .34	+ .02	+ .15	+ .26	+ .32	+ .36

OBSERVED DIVISION CORRECTIONS.

R°	0'	10'	20'	30'	40'	50'	Individual Results.	
	"	"	"	"	"	"	"	"
90	+0.28	+0.46	+0.10	+0.34	+0.34	+0.35	.....	.....
91	+ .26	+ .32	+ .07	+ .22	+ .22	+ .34	+0.34	+0.19
92	+ .15	+ .24	+ .17	+ .30	+ .33	+ .40	+ .13	+ .17
93	+ .06	.00	+ .01	— .07	+ .19	— .36	+ .08	+ .03
94	+ .18	+ .13	+ .07	+ .09	+ .15	— .18	+ .28	+ .09
95	+0.10	+0.31	+0.19	+0.18	+0.30	+0.32	+0.09	+0.11
96	+ .13	— .01	— .03	+ .18	+ .25	+ .01	+ .14	+ .12
97	— .04	— .11	+ .02	— .03	— .16	— .23	+ .06	— .13
98	— .18	— .08	— .21	— .23	+ .11	— .28	— .12	— .25
99	— .02	+ .15	+ .14	— .06	+ .25	— .14	+ .11	— .14
100	—0.12	—0.26	—0.12	—0.26	—0.12	+0.09	—0.14	—0.10
101	— .08	— .35	— .09	— .25	+ .15	— .18	.00	— .17
102	— .08	— .35	— .23	— .28	— .20	— .18	— .06	— .10
103	— .09	+ .06	— .29	— .36	+ .11	— .18	— .12	— .06
104	— .02	+ .22	— .13	— .19	+ .11	+ .04	+ .05	— .08
105	+0.01	—0.02	—0.07	—0.14	+0.06	+0.08	+0.11	—0.09
106	— .14	+ .09	— .02	+ .21	+ .02	— .10	— .02	— .27
107	+ .01	+ .24	+ .35	+ .50	+ .19	+ .44	+ .26	— .24
108	+ .20	+ .29	+ .86	+ .45	+ .29	+ .56	+ .39	+ .02
109	+ .32	+ .49	+ .60	+ .76	+ .49	+ .08	+ .34	+ .29
110	+0.22	+0.29	+0.16	+0.53	+0.32	+0.50	+0.36	+0.08
111	+ .15	— .04	— .09	+ .08	— .23	— .32	+ .10	+ .20
112	+ .07	+ .07	+ .05	+ .08	+ .19	+ .08	+ .06	+ .08
113	.00	+ .05	+ .11	+ .14	+ .31	.00	— .06	+ .07
114	+ .07	+ .17	+ .35	+ .31	+ .13	+ .30	+ .08	+ .06
115	+0.37	+0.04	+0.08	+0.02	—0.25	—0.12	+0.37	+0.37
116	— .06	— .23	— .32	— .08	— .13	— .15	— .08	— .04
117	— .22	— .12	— .36	— .08	— .18	— .34	— .28	— .16
118	— .30	— .36	— .26	— .36	— .24	— .36	— .32	— .29
119	— .22	— .11	— .57	— .28	— .31	— .32	— .25	— .19

OBSERVED DIVISION CORRECTIONS.

R°	0'	10'	20'	30'	40'	50'	Individual Results.		
	"	"	"	"	"	"	"	"	
120	-0.31	-0.32	-0.63	-0.48	-0.56	-0.38	.....	.....	
121	- .45	- .40	- .60	- .32	- .43	- .67	-0.62	-0.21	-0.53
122	- .29	- .58	- .87	- .67	- .52	- .70	- .30	- .28	
123	- .53	- .76	- .65	- .71	- .39	- .56	- .63	- .43	
124	- .45	- .42	- .55	- .22	- .22	- .38	- .43	- .47	
125	-0.45	-0.39	-0.41	-0.23	-0.49	-0.46	-0.49	-0.41	
126	- .17	- .40	- .42	- .24	- .17	- .29	- .22	- .12	
127	- .26	- .55	- .44	- .56	- .24	- .19	- .29	- .24	
128	- .25	- .37	- .43	- .49	- .27	- .24	- .27	- .23	
129	- .17	- .20	- .16	- .42	- .08	- .26	- .20	- .14	
130	-0.38	-0.37	-0.45	-0.70	-0.44	-0.54	-0.59	-0.29	
131	- .52	- .56	- .49	- .56	- .42	- .50	- .50	- .55	
132	- .37	- .59	- .45	- .43	- .45	- .62	- .36	- .38	
133	- .22	- .20	- .08	- .26	- .24	- .45	- .16	- .27	
134	- .14	- .21	+ .02	+ .01	+ .08	- .02	- .22	- .07	
135	+0.11	-0.20	+0.07	-0.01	-0.14	+0.06	.....	.....	
136	+ .32	+ .06	+ .50	+ .31	+ .25	+ .23	+0.38	+0.26	
137	+ .31	+ .02	+ .34	+ .19	- .02	+ .08	+ .40	+ .22	
138	- .04	- .06	+ .15	+ .20	- .15	- .27	- .02	- .07	
139	- .08	- .02	+ .02	- .14	- .32	+ .09	+ .06	- .22	
140	-0.17	-0.29	+0.02	-0.18	-0.41	+0.02	-0.23	-0.11	
141	- .26	- .27	- .03	- .12	- .22	- .18	- .22	- .30	
142	- .37	- .29	- .06	+ .12	- .16	+ .01	- .61	- .23	- .26
143	- .04	+ .16	+ .01	+ .60	+ .17	+ .09	- .06	- .02	
144	+ .14	+ .33	+ .18	+ .54	- .10	+ .14	+ .19	+ .10	
145	+0.31	+0.36	+0.36	+0.56	+0.33	+0.36	+0.42	+0.19	
146	+ .12	+ .14	+ .31	+ .24	+ .07	+ .23	+ .02	+ .22	
147	+ .01	+ .18	+ .04	- .27	- .11	+ .05	- .16	+ .18	
148	- .14	- .04	- .03	- .06	- .28	- .16	- .17	- .11	
149	- .33	- .06	- .27	- .06	- .22	- .34	- .35	- .31	

OBSERVED DIVISION CORRECTIONS.

R°	0'	10'	20'	30'	40'	50'	Individual Results.		
	"	"	"	"	"	"	"	"	
150	-0.23	0.00	-0.08	+0.28	-0.18	-0.22	-0.23	-0.24	
151	-.14	-.04	-.20	-.02	-.23	-.36	-.13	-.15	
152	-.24	-.14	-.12	-.28	-.23	-.10	-.21	-.27	
153	-.28	-.15	-.24	-.14	+.03	+.24	-.31	-.24	
154	-.04	-.03	-.32	-.40	+.19	-.06	-.05	-.03	
155	-0.40	-0.24	-0.39	-0.09	-0.33	-0.15	-0.43	-0.49	-0.28
156	-.29	-.37	-.18	-.10	-.13	-.06	-.29	-.29	
157	-.18	+.07	-.16	-.14	+.22	-.22	-.11	-.26	
158	.00	-.11	-.22	+.06	+.14	-.17	-.02	+.02	
159	-.18	+.14	-.24	-.26	-.20	-.29	-.22	-.15	
160	-0.02	-0.21	-0.26	-0.14	-0.22	-0.20	-0.02	-0.02	
161	-.13	-.02	-.18	+.23	-.15	-.38	-.19	-.07	
162	+.04	+.02	+.14	+.22	+.08	-.25	+.05	+.04	
163	+.01	+.08	+.16	+.21	+.02	.00	-.15	+.16	+.01
164	+.02	+.21	+.21	+.03	+.06	+.10	-.03	+.06	
165	+0.02	+0.08	-0.06	-0.06	+0.10	+0.12	-0.05	+0.09	
166	-.28	-.32	-.38	-.32	-.55	-.43	-.28	-.27	
167	-.34	-.44	-.40	-.31	-.53	-.16	-.36	-.31	
168	-.56	-.42	-.62	-.61	-.20	-.24	-.65	-.46	
169	-.29	-.50	-.42	-.46	-.47	-.44	-.29	-.29	
170	-0.50	-0.46	-0.58	-0.82	-0.54	-0.55	-0.52	-0.49	
171	-.58	-.86	-.64	-.78	-.42	-.70	-.61	-.56	
172	-.47	-.34	-.29	-.58	-.84	-.68	-.54	-.41	
173	-.46	-.47	-.39	-.71	-.46	-.54	-.53	-.38	
174	-.30	+.03	-.16	-.17	-.20	+.36	-.32	-.27	
175	-0.05	+0.01	+0.02	-0.04	-0.32	-0.30	-0.03	-0.08	
176	-.20	-.03	+.08	-.25	-.34	-.52	-.34	-.07	
177	-.42	-.36	-.26	-.35	-.49	-.52	-.42	-.43	
178	-.18	-.25	-.23	-.30	-.24	-.18	-.10	-.25	
179	+.14	+.07	+.41	+.22	+.06	-.40	+.20	+.08	

The above table represents the corrections to one fifth of all the diameters of the circle and it will be necessary to derive the corrections to the remaining four fifths by some process of interpolation from the values above given. If these values could be regarded as free from error their deviation from the values furnished by a smooth curve or a properly determined harmonic series would furnish a measure of the accidental errors of graduation of the circle and an inspection of the numbers as given shows that the combined effect of such accidental error and error in the determinations does not on the average much exceed 0."1 for a diameter. Since a large part of this quantity must be due to the latter cause the conclusion seems justified that to within a few hundredths of a second of arc the errors of graduation of the circle are of a systematic character and may properly be interpolated for those diameters which have not been specially investigated. The conclusion appears the more probable from the manner in which the circle was divided, the lines being engraved upon it consecutively from beginning to end of the graduation. The makers have kindly furnished the following memorandum in regard to the graduation :

MERIDIANKREIS DES WASHBURN OBSERVATORY.

Bei Theilung des Kreises stimmte der Nullpunkt mit dem Nullpunkt des Original-Kreises überein. Ueber der Fortgang der Theilung liegen folgende Aufzeichnungen vor:

Tag und Stunde.	Anfangs Strich.	Temperatur.	Ende.	Temperatur.
	° ' "	°	h	°
1882 April 3 11 $\frac{1}{4}$ h	0 0	14.4 C.	1 h	14.8 C.
2 $\frac{1}{2}$	8 2	15.3	5	15.8
4 9 $\frac{1}{2}$	22 2	13.9	1	15.2
2 $\frac{1}{2}$	46 2	15.4	5	16.1
5 9 $\frac{1}{2}$	61 2	14.8	1	15.6
2 $\frac{1}{2}$	82 2	15.6	3 $\frac{1}{4}$	15.7
6 9 $\frac{1}{2}$	85 2	14.3	1	15.6
2 $\frac{1}{2}$	106 2	15.6	3 $\frac{1}{4}$	15.8
8 9 $\frac{1}{2}$	109 2	14.3	1	15.6
2 $\frac{1}{2}$	134 2	15.8	4 $\frac{3}{4}$	16.2
11 11 $\frac{1}{2}$	147 2	13.5	1	14.4
2 $\frac{1}{2}$	155 2	14.4	5	15.2
12 9 $\frac{1}{2}$	170 2	13.9	1	15.1
2 $\frac{1}{2}$	192 2	15.1	5	15.8
13 9 $\frac{1}{2}$	209 2	15.2	1	16.7

Tag und Stunde.			Anfangs Strich.	Temperatur.	Ende.	Temperatur.
			°	°	h	°
1882	April 13	2½ ^h	234 2	16.7	4½	17.0
	14	9½	244 2	15.1	1	16.7
		2½	266 2	16.7	4½	17.1
	15	9½	276 2	15.2	12½	16.6
		2½	296 2	16.4	3½	16.6
	17	9½	300 2	15.9	1	16.4
		2½	325 2	16.6	4½	16.8
	18	9½	339 2	14.8	12½	15.4

The process actually employed for deriving the adopted division corrections was the following: All of the data contained in the above table together with the values of the division corrections given in Vol. V, Publications W. O. for certain special diameters, were plotted with the numbering of the circle divisions as abscissae and the division corrections as ordinates; the horizontal and vertical scales being respectively, $1^\circ = 17\text{ mm}$ and $1'' = 50\text{ mm}$. Through the points thus plotted a curve was drawn, somewhat greater weight being given in its construction to the better determined ordinates, i. e. to the division corrections of diameters of the lower orders. This curve is adopted as the definitive expression of the division corrections of the circle and all of the corrections which have been employed in the reductions of the observations are derived from it.

If on either side of this curve another curve be drawn parallel with it and so placed that one fourth of all the plotted points shall lie between it and the primitive curve the distance between the two curves will give the probable error furnished by comparing the adopted curve with the data from which it is derived. From an inspection of the plotted data it appears that this auxiliary curve cannot be less than $0.''08$ or more than $0.''12$ from the primitive curve, and I therefore adopt as the probable error of an observed division correction $\pm 0.''10$. The probable error of an adjusted division correction must be considerably less than this amount but how much less cannot be precisely determined in the case of a graphical adjustment. If we assume that in the construction of the curve reference was had at every point to the four $10'$ diameters which were nearest it and note that in the actual use of the circle two diameters are always read by means of the four microscopes, we shall obtain as the probable error of a correction to the circle reading

$$r = 0.''10 \div 2\sqrt{2} = \pm 0.''04.$$

The estimated probable errors which are thus based upon the graphical analysis of the data may be controlled by means of the observed differences between the independent determinations of the corrections to the integral degree

lines furnished by the last column of the table of Observed Division Corrections. From these differences I obtain as the probable error of a single division correction, mean of sixteen observations, $r = \pm 0."054$. Since the probable errors of the 10' diameter are somewhat greater than those of the degree lines it appears that the value $r = \pm 0."10$ is not greatly in error, and the approximate agreement between the values of r indicates further that the accidental errors of graduation are small compared with the systematic errors.

Another determination of the probable errors is furnished by the theoretical relation between the probable error of a single microscope pointing and reading and the probable error of a division correction determined in accordance with the schedule given above. The direct determination of the probable error of a single pointing made by the several observers who have taken part in the work furnishes as a mean value $r = \pm 0."16$ and from this I have computed the probable error of the observed correction to a 1° diameter to be $r = \pm 0."059$, in surprisingly close agreement with the result obtained above.

In the actual application of the division corrections they have been combined with the corrections for flexure and a correction of $-0."28$ to the assumed latitude with which the observations were reduced, and the sum of these corrections has been tabulated with the declination as argument. The adopted total correction is derived by linear interpolation from the table thus formed.

Refraction. The refractions have been derived from the Pulkowa Tables without the application of any corrections. The atmospheric pressure which is one of the arguments of the table was obtained from the uncorrected readings of the standard barometer Green No. 5162 for all observations except those by Mr. Flint in 1891-'92. For these latter observations a Signal Service Barometer, Green No. 2308, was read and its indications reduced to those of Green 5162 by the application of the constant correction, -0.022 inches.

A comparison of Green 5162 with the standards of the U. S. Weather Bureau made during the summer of 1892, through the courtesy of the Chief of the Bureau, by Prof. C. F. Marvin, furnishes as the correction to Green 5162, $+0.006$ inches. This number is still subject to a revision which may very slightly change its value.

The temperature determinations required in connection with the refraction present a discontinuity of method which has been the source of considerable annoyance. Prior to July 17, 1888, all of the temperatures depend upon readings of the Fahrenheit thermometer, Green No. 515, which is employed in the meteorological service of the Observatory. The thermometer is exposed in a large wooden shelter of double louver work attached to the north side of the transit room. Having become satisfied that in calm weather and during the prevalence of light southerly winds the indications of this thermometer did not very closely represent the temperature of the external air. Prof. Brown, while continuing to read this thermometer, employed in the computation of the refractions the indications of a Centigrade thermometer, Green 5163, which was either whirled in the open air or exposed in an open window on the windward side of the observing room.

This practice was continued to the end of 1888, but in January, 1889, the

original method of determining the temperature was readopted and the refractions for the remainder of the work were computed with the indications of the crib thermometer, Green 515.

In order to render the computed refractions homogeneous I have had a comparison made between the indications of the two thermometers for each night on which the refractions depend upon the the indications of Green 5163, and have determined for each of these nights the correction $d\tau$ which must be applied to the corrected readings of Green 5163 in order to reduce them to the corrected readings of Green 515. These temperature corrections furnish corrections to the computed declinations of the stars by means of the relation

$$d\delta = + 0."11 \tan (\varphi - \delta) d\tau$$

where $d\tau$ is expressed in degrees Fahrenheit. These corrections *have been applied* to all the results which depend upon the whirled thermometer and all of the computed declinations now depend upon the indications of the crib thermometer, Green No. 515.

Division corrections for both of these thermometers were determined in 1885, *Publications W. O., Vol. IV, pp. 43, 44*, and were verified in January, 1890, by re-determining the correction at the freezing point. These corrections have been applied to all of the thermometer readings.

In January, 1892, I made another determination of the division corrections of the crib thermometer by comparing it with a standard thermometer whose errors had recently been determined for me through the courtesy of the Chief Signal Officer, U. S. A. in the Signal Office at Washington. The resulting corrections to reduce the indications of Green 515 to those of the standard air thermometer of the Signal Service are as follows :

	°	°	°	°	°	°	°	°	°	
Temp.	0	+10	+20	+30	+40	+50	+60	+70	+80	+90
	°	°	°	°	°	°	°	°	°	°
Corr. F.	-0.9	- 0.5	- 0.5	- 0.5	- 0.5	- 0.6	- 0.5	- 0.4	- 0.4	- 0.2

At the freezing point and lower temperatures these corrections agree well with those which were employed in the reductions, but at higher temperatures they differ by about 0.°4 F. The corresponding difference in declination for a star in 45° zenith distance is 0."04.

In Vol. VI, Part 4, *Publications W. O.*, I have given a discussion of the absolute latitude derived from the present series of observations and from a comparison of the results furnished by stars at different distances from the pole have reached the conclusion that the temperature determinations are not affected with any considerable systematic error, or at least that the introduction of any systematic correction to the temperatures amounting to more than 0.°3 or 0.°4 F. will sensibly impair the agreement in the latitude results obtained from different stars. I therefore conclude that the temperature at the objective of the telescope, the reading of the crib thermometer and the errors of the refraction table are so related that the refractions computed with the temperatures furnished by the crib thermometer as argument require no correction. This conclusion is confirmed by the results of an investigation of the refrac-

tion made with the Loewy prism apparatus attached to the six-inch Clark equatorial telescope of this observatory. The details of this investigation are to be published in Vol. IX, Publications W. O., but its provisional results may be found in No. 251 of the *Astronomical Journal*.

Reduction of the R. A. Observations. The chronograph sheets have in general been read only once but errors in the reading have been controlled either by the reduction of each observed transit over a thread to the middle thread or by comparing the observed time of transit over the middle thread with the mean of the times of transit over each pair of threads symmetrically placed with respect to the middle thread. The mean of the observed transits of a star having been derived by one of these methods was entered in the observing book and copied from it to the reduction sheets and the copying checked except in the case of some of the later observations by Mr. Flint where it appears not to have been checked.

The observed times were first corrected for collimation, diurnal aberration and an assumed rate of the clock, derived from observations separated by an interval not less than twenty-four hours. Bessel's formula was then employed to determine the values of n and $\Delta T + m$. Whenever practicable the value of n was made to depend upon observations of the six circumpolar stars for which daily ephemerides are given in the Berliner Jahrbuch and the observing program was arranged with reference to beginning and ending the night's work with observations of one of these stars. The very considerable interval between transits of these stars made it necessary to employ a certain number of other stars for the sake of a more frequent control of the value of n and for this purpose Prof. Brown selected the following stars to whose tabular right ascensions as given in the Berliner Jahrbuch he applied corrections derived from his own observations. The value of these corrections, together with the number of observations upon which they depend, m , are given in the following table in which I have included for comparison, the corresponding corrections derived by Safford, *The Williams College Catalogue of North Polar Stars*; Chandler, *The Almucantar, Annals H. C. O., Vol. 15*; and Romberg, *Beob. Ergeb. der k. Sternwarte zu Berlin, Heft. No. 4*.

TABLE OF SECONDARY POLAR STARS.

<i>Star.</i>	<i>R. A.</i>	<i>Dec.</i>	<i>Brown, m.</i> 1889.	<i>Romberg.</i> 1871.	<i>Chandler.</i> 1884.	<i>Safford.</i> 1884.
	<i>h. m.</i>	<i>°</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>
1 <i>H</i> Draco.	9 21	81.8	+0.30 18	+0.33	+0.24	+0.26
9 <i>H</i> Draco.	10 25	76.3	+ .21 17	+ .11	+ .19	.....
λ Draco.	11 25	69.9	- .19 (<i>a</i>)	+ .05	- .06	.....
4 <i>H</i> Draco.	12 7	78.2	+ .05 14	+ .05	+ .03	.....
γ Urs. Min.	15 21	72.2	- .14 9	.00	- .25	- .22
ζ Urs. Min.	15 48	78.1	+ .11 10	+ .05	- .06	+ .19
ε Urs. Min.	16 57	82.2	.00 (<i>b</i>)	+ .26	+ .02	.....
76 Draco.	20 50	82.1	.00 (<i>b</i>)	[+ .17]	[+ .43]	.00
γ Cephei.	23 35	77.0	+ .05 17	+ 12.	- .14	.....

(*a*) Correction taken from Newcomb. (*b*) Correction assumed.

The corrections to the R. A. of 76 Draconis derived by Romberg and Chandler represent the effect of an erroneous proper motion which was corrected in the B. J. for 1886 and subsequent years and has been taken into account by Safford.

Although these corrections were regarded by Prof. Brown as provisional, and not as the definitive results of his work, they all seem to be in substantial agreement with those elsewhere obtained except in the case of λ Draconis. The correction adopted for this appears to have been unwarranted, the mean of 24 observations of the star giving a correction of $-0^s.08$ in excellent argument with Chandler's result.

The values of n furnished by the several polar stars observed on each night were united into a simple mean if they presented no certain indication of change in the position of the instrument. In many cases, however, values of n were interpolated between the observed values, either on the assumption of uniform variation or by the construction of a curve.

Values of $\Delta\tau+m$ were derived from each Hauptstern south of 60° declination which had been observed at upper culmination during the evening, and the value of this quantity required in deriving the right ascensions was obtained precisely as in the case of n , save that recourse to the construction of a curve was very seldom required.

For all stars whose apparent places are given in the Berliner Jahrbuch the difference *Obs.—B. J.* is adopted as the correction to the mean right ascension of the star. For stars whose apparent places were not thus available special ephemerides were computed by means of the proper motions and Bessel constants a, b, c, d , given in the Jahrbuch and the day numbers A, B, C, D, E , of the American Ephemeris.

Systematic Corrections to the R. A's. The means of the individual $\Delta\alpha$ s derived by the several observers have been discussed with reference to possible systematic differences depending upon the observer and the position of the circle. Mr. Flint finds that the difference Brown-Egbert is very approximately represented by the expression

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$$B.-E. = k \sec \delta, \quad k = +0.0094 \pm 0.0008$$

The data upon which the formula is based are contained in the following table:

B.-E. SYSTEMATIC DIFFERENCE IN R. A.

Limits of δ	n	Circle W.	n	Circle E.	$\frac{1}{2}(W+E.)$	$O.-C.$
$-15^\circ \dots +15^\circ$	45	^s +0.016	26	^s +0.006	^s +0.011	+0.002
+15 $\dots$ +44	55	+ .011	29	+ .010	+ .010	- .001
+44 $\dots$ +62	41	+ .008	20	+ .027	+ .018	+ .001
+62 $\dots$ +80	54	+ .013	30	+ .031	+ .022	- .008
+80 $\dots$ +90	9	- .068	6	- .049	- .058	.....
+90 $\dots$ +100	9	+ .058	5	+ .131	+ .094	.....
+100 $\dots$ +130	56	+ .003	28	+ .039	+ .021	+ .002

The stars within 10° of the pole are not included in the formula given above and I am not certain whether the well marked change of sign near $\delta=80^\circ$ is to be regarded as real or not. In any case the corrections here are very small and may be neglected.

A similar comparison between Brown and Flint furnishes the following data:

B.-F. SYSTEMATIC DIFFERENCE IN R. A.

Limits of δ	n	Circle W.	n	Circle E.	$\frac{1}{2}(W+E.)$
$-15^\circ \dots +5^\circ$	17	^s +0.020	36	^s +0.031	^s +0.026
+5 $\dots$ +20	22	+ .006	34	+ .009	+ .008
+20 $\dots$ +35	18	+ .016	10	+ .006	+ .011
+35 $\dots$ +55	14	- .002	25	+ .013	+ .006
+55 $\dots$ +70	14	- .011	9	+ .023	+ .006

The probable error of a number in the table may be assumed to be

$$r = \pm \frac{\sup 0.023}{\sqrt{n} \cos \delta}$$

where n represents the number of stars. If we adopt as the equivalent of the above table the constant expression

$$B.-F. = +0.014 \pm 0.003$$

the residuals furnished by the several tabular quantities will be but little in excess of those indicated as probable by the theory of errors. The personal peculiarities shown by the differences B.-E. and B.-F. seem quite different for the three observers and the mean of their results would seem to be indicated as the proper normal system to which to reduce the individual observations, but since the number of observations by B. considerably exceeds that of either E. or F. and as the observations of F. are separated from those of the other observers by an interval of about two years, it has seemed

proper to give to B. more weight in the formation of a normal system of right ascensions, and I have therefore adopted

$$\text{Normal System: } N = \frac{1}{4} (2 B + E + F.)$$

The systematic corrections required for reduction to this system are:

$$N.-B. = -\frac{1}{4} (B.-E.) - \frac{1}{4} (B.-F.) = -\overset{s}{0.0035} - \overset{s}{0.0024} \sec \delta$$

$$N.-E. = +\frac{1}{4} (B.-E.) + \frac{1}{4} (B.-F.) - \frac{1}{2} (E.-F.) = -0.0035 + 0.0070 \sec \delta$$

$$N.-F. = +\frac{1}{4} (B.-E.) + \frac{1}{4} (B.-F.) + \frac{1}{2} (E.-F.) = +0.0105 - 0.0024 \sec \delta$$

The values of these reductions to a normal system are shown in the following table:

SYSTEMATIC CORRECTIONS IN R. A. FOR PERSONAL ERROR OF THE OBSERVERS.

δ	N.-B.	N.-E.	N.-F.
$^{\circ}$	$\overset{s}{-}$	$\overset{s}{+}$	$\overset{s}{+}$
0	-0.006	+0.004	+0.008
10	.006	.004	.008
20	.006	.004	.008
30	.006	.005	.008
40	.007	.006	.007
50	.007	.007	.007
60	.008	.010	.006
70	.010	.017	+ .004
80	-0.017	+0.037	-0.003

These corrections have not been applied to the right-ascensions.

No data are available for determining for any of the observers, the personal equation depending upon the magnitude of the star, but since very few of the stars are fainter than the sixth magnitude this source of systematic error appears of relatively small importance.

The data for the determination of errors depending upon the position of the observer, Head n. or Head s., although not well distributed are sufficient to furnish a fairly good estimate of these errors. Such observations were made by Mr. Flint in both positions of the circle, by Prof. Brown, Circle E., and there are a very few observations by Mr. Egbert which are available but have not been discussed for this purpose, it appearing to me better to derive his personal equation from the systematic difference Brown-Egbert. From 217 observations of 45 zenith stars observed by Prof. Brown an equal number of times head north and head south I obtain

$$\Delta \alpha_n - \Delta \alpha_s = + \overset{s}{0.016} \pm \overset{s}{0.003} \quad (\text{Obs'r B.})$$

where the subscripts n and s denote that the star was observed as if north or south of the zenith respectively—i. e., n denotes that the observer's head was south.

A similar comparison of Mr. Flint's observations of zenith stars furnishes the relations:

$$\text{Circle W. } \Delta\alpha_n - \Delta\alpha_s = -0.038 \pm 0.008 \quad (\text{Obs'r F.})$$

$$\text{Circle E. } \Delta\alpha_n - \Delta\alpha_s = -0.025 \pm 0.008$$

I know no reason for supposing a personal equation of this kind to be different in the two positions of the circle and in the absence of observations by B., Circle W. I assume that the same correction is required for that position of the instrument. If the clock corrections were derived from an equal number of fundamental stars on each side of the zenith the required correction to the observed $\Delta\alpha$ s would be one half of the difference N.-S., but if the ratio of northern to southern stars be that of the numbers n and m , then denoting by the subscript o a value corrected for the personal error we shall have for observer B.,

$$\Delta\alpha_o = \Delta\alpha_n - \frac{0.016}{1 + \frac{n}{m}} \quad \Delta\alpha_s + \frac{0.016}{1 + \frac{m}{n}}$$

or rather, the expression would assume this form if the coefficient 0.016 could be assumed constant for all declinations. The senses which are employed in the observation of transits with a chronograph are sight and touch, and if the personal error under consideration be attributed to the latter source its effect may with some plausibility be considered constant, but if as seems more probable, the error arise from the sight it will probably vary as the secant of the declination and we must put

$$\Delta\alpha_o = \Delta\alpha_n - \frac{0.012}{1 + \frac{n'}{m'}} \sec\delta \quad \Delta\alpha_o = \Delta\alpha_s + \frac{0.012}{1 + \frac{m'}{n'}} \sec\delta$$

where n' and m' denote the sum of the secants of the declinations of the clock stars north and south of the zenith. For an average observing night $m' = 2 n'$ whence for observer B

$$\Delta\alpha_o = \Delta\alpha_n - 0.008 \sec\delta \quad \Delta\alpha_o = \Delta\alpha_s + 0.004 \sec\delta$$

The expressions indicate that if the personal equation of observer E, depending upon his position, is sensibly different from that of B, the function B.-E. will be discontinuous at the zenith. Since no such discontinuity is shown in the investigation of B.-E. given above it appears that the corrections for position, if real, are sensibly the same for both B. and E., whether the coefficient be assumed constant or a function of $\sec\delta$. If these correction terms be assumed to arise from some peculiarity of vision their effect should be made manifest by a comparison of the right ascensions of stars observed above and below pole since the relation to the observers' eyes of the direction of motion of a star below pole is the same as that of a star south of the zenith. Such a comparison, however, appears to be a much less satisfactory method of deriving numerical results than that furnished by observations of zenith stars, since the observations are separated by an interval of several months and may be seriously affected by changes in the observers' reaction time. I have made a comparison of the right ascensions observed above and below the pole, using for this purpose observations by both B. and E. of all stars between 68° and 80° declination, except those which were employed for determining the instrumental constants and a few for which the number of observa-

tions seemed too small to render them of consequence. The results of this comparison are as follows:

Limits of δ	No. of Stars.	Above Pole—Below Pole.	
		Circle W.	Circle E.
$68.0 \dots 72.5$	14	^s -0 021	^s -0.011
$72.5 \dots 77.0$	15	+ .008	+ .012
$77.0 \dots 80.0$	14	+ .013	- .015

These numbers appear to be due to accidental error of observation and do not at all confirm the results derived from the zenith stars unless it be assumed that they are affected with a systematic error in the determination of n , which nearly compensates the effect of the personal error. If each of the above results be multiplied by the cosine of the mean declination of the group of stars from which it was derived and the mean of the products taken it will furnish as the definitive result from circum-polar stars:

$$R. A. \left\{ \begin{array}{l} \text{Above Pole—Below Pole} \end{array} \right\} = -0^s.002 \sec \delta$$

In view of this result I have decided not to apply to the observed right ascensions the corrections above derived from observations of zenith stars.

The close agreement in the right ascensions observed above and below pole testifies to the excellence of the pivots of the instrument and indicates that they have not become sensibly worn since the investigation of their figure made in 1882 and published in Vol. I, Publications W. O.

Reduction of the Observations in Declination. The means of the microscope readings and of the micrometer bisections were taken and entered in the observing books and these means together with the symbols designating the transit threads at which the bisections were made and the readings of the barometer and thermometer were copied upon the reduction sheets and the copying checked. From the corrected readings of the meteorological instruments the values of γ and $B+T$ required for the refraction computations were derived, plotted, and smooth curves drawn through them from which the values of the quantities actually employed in the refraction computations were read. The circle readings corrected for the readings of the telescope micrometer, for refraction and for reduction to the meridian furnished a corrected circle reading represented by C_o . The nadir observations, graphically adjusted whenever any considerable variation during a night's observing was apparent, furnished a reading for the zenith point which was transformed into an equator point, E_o , by applying to it the nominal latitude,

$$\varphi = 43^\circ 4' 37''.00 \text{ (Assumed)}$$

and the apparent declination of the star was then obtained from the relation

$$\delta = \pm (C_o - E_o)$$

the upper sign for Circle W., the lower sign for Circle E.

For all stars whose apparent places are given in the Berliner Jahrbuch the nominal correction, $\Delta\delta$, to the mean place of the star was derived by subtracting from δ the

apparent place interpolated from the B. J. For stars whose apparent places are not given special ephemerides were constructed from the proper motions and Bessel constants a' , b' , c' , d' of the B. J. and the day numbers A , B , C , D , of the American Ephemeris.

The values of $\Delta\delta$ thus derived require correction for the error of the nominal latitude, for division error of the circle and for flexure, but since these corrections are constant for all observations of a star made in the same position of the instrument they have not been applied to the individual observations but their combined effect is applied to the mean result from all the observations of a star made in the same position of the instrument. The construction of the table from which this correction is derived is as follows: Representing by D the division correction required by the circle reading corresponding to the declination δ , and adopting as definitive the results for flexure and latitude obtained in Chapter I, Publications W. O., Vol. VI, Part 4, we have for the total correction to the nominal $\Delta\delta$ the expression

$$\text{Corr.} = -0''.23 + 0''.33 \sin(\varphi - \delta) \pm 0''.09 [1 + \cos(\varphi - \delta)] \pm D$$

in which the upper sign is to be employed for Circle W. and the lower sign for Circle E.

Values of this correction are given in the following table, the unit of which is $0''.01$:

DIVISION ERROR + FLEXURE + Δ LATITUDE.

Circle West.

δ	0	1	2	3	4	5	6	7	8	9	10
°											
- 30	+27	+30	+42	+48	+40	+44	+58	+62	+55	+46	+38
- 20	+78	+52	+27	+33	+37	+31	+26	+23	+30	+32	+27
- 10	+31	+31	+31	+40	+50	+54	+55	+58	+63	+73	+78
- 0	+25	+26	+27	+21	+15	+17	+15	+16	+25	+31	+31
+ 0	+25	+26	+19	+13	+14	+20	+34	+54	+66	+63	+52
+ 10	+52	+51	+49	+50	+54	+64	+82	+89	+81	+59	+42
+ 20	+42	+45	+41	+29	+28	+29	+38	+30	+32	+33	+21
+ 30	+21	+18	+18	+26	+41	+53	+59	+58	+40	+25	+10
+ 40	+10	+30	+ 7	-19	+20	+35	+42	+36	+20	+ 3	+ 3
+ 50	+ 3	+11	+19	+25	+20	+ 6	+ 1	+ 9	+ 2	-10	-14
+ 60	-14	-10	-12	-20	-17	-12	- 6	-12	-18	+ 6	+31
+ 70	+31	+26	+15	+10	+ 7	+ 5	+ 1	- 9	-19	-20	-21
+ 80	-21	-22	-27	-37	-38	-37	-39	-32	-27	-28	-29
+ 90	-29	-28	-36	-41	-41	-35	-21	- 1	+11	+ 8	- 3
+100	- 3	- 4	- 6	- 5	- 1	+ 8	+27	+33	+26	+ 4	-13
+110	-13	- 9	-13	-25	-26	-24	-15	-23	-21	-19	-31
+120	-31	-34	-33	-25	-10	+ 3	+ 8	+ 8	-10	-25	-39

DIVISION ERROR + FLEXURE + Δ LATITUDE.*Circle East.*

δ	0	1	2	3	4	5	6	7	8	9	10
°											
- 30	- 40	- 33	- 36	- 35	- 24	- 20	- 23	- 32	- 47	- 59	- 65
- 20	- 88	- 90	- 78	- 56	- 48	- 47	- 41	- 30	- 28	- 33	- 40
- 10	- 39	- 57	- 67	- 60	- 52	- 51	- 51	- 52	- 57	- 67	- 88
- 0	- 20	- 27	- 30	- 28	- 28	- 27	- 18	- 13	- 15	- 24	- 39
+ 0	- 20	- 20	- 21	- 20	- 27	- 34	- 35	- 36	- 37	- 45	- 58
+ 10	- 58	- 60	- 62	- 65	- 70	- 79	- 89	- 64	- 38	- 41	- 48
+ 20	- 48	- 42	- 37	- 36	- 42	- 45	- 44	- 43	- 59	- 66	- 59
+ 30	- 59	- 57	- 74	- 81	- 78	- 68	- 62	- 58	- 74	- 89	- 98
+ 40	- 98	- 93	- 79	- 38	- 55	- 83	- 66	- 76	- 93	-111	-116
+ 50	-116	-110	- 98	- 84	- 74	- 72	- 75	- 87	- 88	- 85	- 93
+ 60	- 93	- 86	- 81	- 83	- 94	-100	-101	-110	-132	-145	-143
+ 70	-143	-122	-112	-108	-106	-107	-107	-116	-122	-112	- 94
+ 80	- 94	- 79	- 70	- 68	- 73	- 81	- 81	- 82	- 83	- 80	- 73
+ 90	- 73	- 73	- 74	- 72	- 79	- 86	- 87	- 87	- 87	- 96	-108
+100	-108	-110	-111	-113	-118	-127	-137	-111	- 86	- 88	- 94
+110	- 94	- 88	- 82	- 80	- 86	- 88	- 86	- 84	- 99	-106	- 98
+120	- 98	- 96	-112	-118	-114	-103	- 96	- 91	-106	-121	-129

The personal differences contained in the declinations determined by the several observers have been examined in a manner entirely similar to that employed for the right ascension. Grouping the stars in three zones whose limiting parallels of declination pass through the zenith and the pole, I obtain the following comparison between the observations of Brown and Egbert, where n denotes the number of stars included in the comparison.

B.-E. SYSTEMATIC DIFFERENCE IN DECLINATION.

Zones.	Circle W.	n	Circle E.	n
South of Zenith.	-0.18	89	+0.10	51
Zenith to Pole.	+0.07	96	+0.20	51
Below Pole.	+0.10	90	+0.25	48

The probable error of any one of these numbers is very approximately

$$r = \pm 0''.32 \div \sqrt{n}$$

The comparison between Brown and Flint requires a different treatment since Mr. Flint's observations, Circle E., fall into two classes apparently affected with very different personal errors, *i. e.*, observations of stars in R. A. 18^h to 24^h made in September and October, 1891, and observations of stars between 0^h and 6^h made in December, 1892. Representing these groups by the numerals I and II respectively we have the following comparison:

B.-F. SYSTEMATIC DIFFERENCE IN DECLINATION.

Zones.	CIRCLE W.		CIRCLE E.			
	B.-F.	<i>n</i>	B.-F., I.	<i>n</i>	B.-F., II.	<i>n</i>
South of Zenith.	+0.21	37	+0.30	22	-0.38	19
Zenith to Pole.	+0.09	16	+0.27	10	-0.81	5
Below Pole.	+0.03	4	+0.56	2	-0.16	1

No explanation for the anomalous character of the differences II is apparent and it would perhaps have been proper to reject these observations as being affected by some unknown source of error. This, however, has not been done; all of the results are retained and are united in a simple mean without correction for the systematic differences above derived.

The same series of observations of zenith stars which was discussed in connection with the right ascensions to determine the personal error dependent upon the observer's position head north or head south, is also available for the determination of similar corrections in declination. From 32 stars observed Circle E, by Prof. Brown, I obtain

$$\text{Obs'r B. N.-S.} = + 0''.07 \pm 0''.06$$

and similarly Mr. Flint finds from his observations,

$$\begin{aligned} \text{Obs'r F. Circle W. N.-S.} &= + 0''.25 \pm 0''.12 \quad 12 \text{ stars.} \\ \text{Circle E.} &+ 0''.21 \pm 0''.08 \quad 18 \text{ tars.} \end{aligned}$$

Mr. Egbert's observations furnish no available data for such a comparison.

Observations of zenith stars made by B. and E. in both positions of the circle were employed for a determination of the cosine flexure of the instrument (Publications W. O., Vol. VI., Part 4,) and since the resulting value of *k* is in very close agreement with the value adopted for the reduction of the observations the systematic difference between the declinations determined Circle E. and Circle W. by these observers may be assumed insignificant. No satisfactory determination of Mr. Flint's systematic difference Circle W.—Circle E. can be obtained until an explanation is found for the difference shown by the two groups of observations Circle E. which are above represented by the symbols I and II.

Although the presence of personal differences among the results obtained by the several observers both in right ascension and declination seems fairly well established

and the existence of personal equations depending upon the position of the observer and instrument is strongly indicated, it has not seemed expedient to attempt to apply corrections for these sources of error, and the individual observations in both coordinates have been united into mean results without reference to them. These mean results are given at the end of this volume in the form of adopted corrections to the tabular places of the Berliner Jahrbuch.

To determine the probable error of a single observation of right ascension I have selected at random within certain zones of declination from stars which were not employed in determining instrumental constants or clock corrections the data whose results are summarized in the following table:

PROBABLE ERROR OF A SINGLE R. A.

Limits of δ	No. of		Obsd. r_1	$r_1 \cos \delta$	Computed r_1
	Stars.	Residuals.			
— 10....+ 10	14	103	± 0.022	± 0.022	± 0.020
+ 40....+ 45	17	105	.025	.019	.026
+ 60....+ 63	18	107	.040	.019	.040
+ 75....+ 78	20	125	.084	.020	.084
+102....+105	20	122	.077	.018	.090
+117....+120	18	108	.052	.025	.048

The agreement among the numbers in the column $r_1 \cos \delta$ may be construed as indicating that the probable error of a right ascension expressed in parts of a great circle is the same for all declinations included within the limits of the table, but I am inclined to regard the last number as denoting a real diminution in the precision of the observations at zenith distances greater than 65° or 70° . The data of the table may be very conveniently expressed by the formula:

$$r_1 = \pm 0.019 \sec \delta (\sec z)^{\frac{1}{2}}$$

The determination of the probable error of a single declination is complicated by the effect upon the observations of probable variations in the latitude which cannot now be fully taken into account. I have endeavored to avoid the effect of such variations, at least in part, by using for the determination of probable errors only those stars which were observed five or more times within a period not exceeding six weeks. The effect of this limitation is to eliminate some real sources of error which should be allowed to have their effect upon the probable errors, while, on the other hand, a certain part of the error due to varying latitude still remains in the data. Grouping the stars in zones of declination in order to obtain the effect of varying zenith distance upon the precision of the observations the following results are obtained from the observations of B. and E. uncorrected for personal difference between the observers;

PROBABLE ERROR OF A $\Delta\delta$. OBS'RS B. AND E.

Z. D.	Limits of δ	No. of		Obsd. r_1	Comp. r_1
		Stars.	Resid- uals.		
0	+ 38....+ 48	23	140	± 0.35	± 0.35
38	0....+ 10	23	154	.34	.36
76	+117....+121	22	139	.59	.58

It is commonly assumed that the probable error of a declination observation arises from two sources, one of which is constant while the other varies as the tangent of the zenith distance. If this assumption be made in the present case we shall find

$$r^2 = (0."35)^2 + (0."115 \tan z)^2$$

The values of the probable error computed from this expression are given in the last column of this table. If the last term in the expression for r^2 be supposed wholly due to the effect upon the computed refractions of erroneous determinations of the external temperature, it will furnish as the probable error of such a determination

$$r = \pm 0."55 C.$$

but this must be regarded as a superior limit since other causes such as unsteadiness of the star images and possible inclination of the strata of homogeneous air to the plane of the horizon, etc., doubtless contribute in considerable measure to the magnitude of this term.

Mr. Flint's observations are not included in the above discussion of probable errors, since they were not available at the time the discussion was made, but the precision of his observing does not appear to be sensibly different from that of the data treated.

No use has been made of the probable errors above derived except to determine a limit for the rejection of discordant observations. After the individual results in both coordinates had been assembled and prepared for the printer all of the anomalous results were subjected to a special re-examination to detect possible errors in the reductions and all results which after this re-examination furnished residuals greater than $0^s.10 \sec\delta$ in *R. A.* and $2."0$ in *Dec.* were bracketed and excluded from the final mean results. These rejected results are, however, printed in their appropriate places in the Table of Individual Results, and are there distinguished by brackets.

For the determination of the weights to be assigned to latitude results from stars at different distances from the pole, I have employed an expression for the probable error of a single declination derived from the observations of 1884-'85. See *Publications W. O., Vol. VI., Part 4.* The probable errors furnished by this expression differ so little from the results obtained above that I have not deemed it necessary to revise the weights there employed.

Comparison with the Berliner Jahrbuch. The right ascensions contained in this volume having been derived from those of the Pulkowa Hauptsterne, Nos. 1—336 of the Berliner Jahrbuch by a purely differential process, may be assumed to be strictly

comparable with those right-ascensions. The declinations are so derived as to be entirely independent of any assumed system of star places and their comparison with the declinations of the *B. J.* is therefore a matter of some interest. Such a comparison has been made by Mr. Flint who has employed for this purpose every star which was observed four or more times, without distinguishing between *Hauptsterne* and *Zusatzsterne*.

Taking up first the systematic difference *Obs.—B. J.* depending upon the right ascension, it should be noted that the major part of the observations were made between 8^h and 13^h of mean solar time, and that the periodic variation of the latitude will therefore introduce into the declinations a term varying with the right ascension. In the present state of knowledge with regard to these variations, it does not appear proper to attempt to derive from them corrections to the observed declinations, although a certain similarity may easily be shown to exist between the systematic differences *Obs.—B. J.* and the periodic variation of latitude derived from nearly simultaneous determinations at other observatories.

The following tables exhibit the systematic differences between the observed declinations and the declinations of the Berliner Jahrbuch in the sense *Obs.—B. J.* The quantity M' is derived from a comparison of observations made above pole and M'' from observations below pole. In deriving the quantity M of the second table the declinations have been reckoned through the pole and are therefore the supplements of the tabular quantities. The argument of the first table is the hour of right-ascension within which the results united into a single mean are included; *e. g.* the mean result from all stars whose right-ascensions lie between 0^h and 1^h is placed opposite the argument 0. The number of stars included in a mean is shown in the several columns headed n .

SYSTEMATIC $\Delta\delta$. OBS.—B. J.

R. A.	M'	n'	M''	n''	R. A.	M'	n'	M''	n'
h	"		"		h	"		"	
0	+0.06	20	+0.34	4	12	−0.27	16	+0.12	6
1	−.14	21	+ .34	5	13	− .38	15	+ .14	4
2	+ .06	22	+ .38	3	14	− .37	20	− .21	4
3	− .11	22	+ .04	5	15	− .50	23	− .15	4
4	− .19	21	+ .24	4	16	− .19	21	− .10	5
5	− .16	21	+ .18	3	17	+ .19	18	+ .29	4
6	− .32	20	− .12	7	18	+ .26	17	+ .11	7
7	− .43	20	− .21	2	19	+ .12	23	+ .20	2
8	− .32	17	− .13	4	20	+ .40	23	+ .24	5
9	− .38	19	− .46	5	21	+ .54	18	+ .12	2
10	− .44	19	− .17	5	22	+ .22	22	+ .18	4
11	− .51	17	+ .17	3	23	+ .45	20	+ .57	4
12	− .27	16	+ .12	6	24	+ .06	20	+ .34	4

SYSTEMATIC $\Delta\delta$. OBS.—B. J.

Declination.	M .	n .
— 32....— 15	[+0.45]	6
— 15....— 5	— .14	18
— 5....+ 5	— .26	39
+ 5....+ 15	— .32	58
+ 15....+ 25	— .40	58
+ 25....+ 35	— .42	54
+ 35 ...+ 45	— .07	64
+ 45....+ 55	+ .23	43
+ 55....+ 65	+ .23	55
+ 65....+ 75	+ .13	54
+ 75....+ 90	+ .15	35
+ 90....+105	— .07	35
+105....+115	— .06	45
+115....+125	— .11	21

The first value of M in the above table is derived almost entirely from observations by F . and is perhaps not comparable with the others, it is therefore bracketed, although its value agrees fairly with the general course of the other differences. The marked change in the character of M which occurs at the zenith, and the fact that the quantity becomes zero at the pole seem to indicate that these differences arise from some undetermined instrumental errors and can not be charged to errors in the tabular declinations.

These systematic differences are of course to be regarded only as first approximations but it does not seem expedient to attempt any more complete investigation of them until the periodic variation of latitude can be taken into account.

The following tables of instrumental constants will be understood from the headings of the several columns. Table I gives the mean solar date of each determination to the nearest tenth of a day and the sidereal time to the nearest tenth of an hour. The values of the level constant b are those determined with the spirit level. For those dates upon which the glass plate was employed for the observation of transits the table gives the readings of the R. A. micrometer screw for which the collimation was zero and at which the screw was clamped. The simultaneous determinations of c from the nadir observations constitute a part of the data from which have been derived the systematic corrections to the several modes of determining the collimation. Table II gives for each night upon which observations were made, the adopted values and hourly variations of $\Delta T+m$ and n , and the adopted value of the collimation constant. Table III contains the observed nadir points.

In Table I the values of c marked with an asterisk were determined by the collimators. They are marked also by the absence of an accompanying value of b .

Where any of the constants presented in these tables show an unusual change and there is any record bearing on the matter, a foot-note is given. From Sept. 12, 1891, to Feb. 16, 1892, the instrument remained unadjusted.

As in the tables of $\Delta\alpha$ and $\Delta\delta$, quantities enclosed in brackets were not used in the reductions.

TABLE I A.—LEVEL AND COLLIMATION CONSTANTS.

1887.	<i>Sid. Hour.</i>	<i>Obs'r.</i>	b	c <i>from Nadir</i>	<i>Microm. Setting.</i>
<i>Circle W.</i>			s	s	r
Nov. 17.	....	B	.....	.....	0.088
28.3	0.6	B	+0.195	.....	....
28.4	2.9	B	+ .234	.....	....
29.	....	B	+ .125	.....	....
Dec. 8.	....	B	--- .174	.....	.100
9.	....	B	— .174	.....	.098
12.	....	B	— .050	.....	.103
12.9	17.5	B	— .118	—0.010	.112
13.4	2.0	B	— .153	+ .016	.110
13.	....	B	— .153	+ .002	.110
16.3	1.5	B	— .077	.000	.103
19.4	2.0	B	— .191	.....	.105
19.4	2.9	B	+ .036	.....	....
29.3	2.0	B	+ .075	.....	.105
1888					
Jan. 11.	....	B	+ .390	.....	....
27.3 ¹	4.4	B	+ .498	.....	.986
Feb. 1.	....	B	.....	.....	.983
5.3 ¹	....	B	.....	.....	.995
5.9 ²	....	B	+ .838	.....	.987
7.3	4.8	B	+ .760	.....	....
Apr. 17.3	10.7	B	+ .158	.....	.995
17.4	12.2	B	+ .175	.....	....
17.5	13.7	B	+ .163	.....	....
20.3	9.6	B	+ .144	.....	.993
21.3	9.5	B	+ .115	.....	....

¹ Jan. 22. Focus and verticality of transit threads adjusted. ² Coll. = +0^s.034 from pointings on opposed collimators.

TABLE I, A.

1888.	<i>Sid. Hour.</i>	<i>Obs'r.</i>	<i>b</i>	<i>c from Nadir</i>	<i>Microm. Setting.</i>
<i>Circle W.</i>			s	s	r
Apr. 21.4	11.5	E	+ .120	.....	....
24.3	10.2	E	+ .006	.....	....
24.5	13.6	E	+ .020	.....	....
May 1.3 ⁴	....	E	.....	.....	.910
1.3	....	B	.....	.....	.905
1.3	....	C	.....	.....	.900
10.2 ⁵	....	..	.....	.....	.850
14.2	....	B	.....	.....	.912
14.2	....	B	.....	.....	.906
14.2	....	E	.....	.....	.916
14.3	11.6	B	— .005	—0.043	....
14.5	....	B	+ .009	— .053	....
15.3	11.6	B	— .024	— .024	.913
15.5	....	B	— .083	.062	....
16.3	11.6	E	— .100	+ .020	.911
16.5	15.5	E	— .045	— .017	....
18.0	....	E	— .049	.....	.911
19.3	....	B	— .095	— .029	....
21.1	....	E	.....	.....	.912
21.3	12.7	E	— .043	+ .023	....
23.3	....	B	— .142	+ .006	....
25.3	....	E	+ .016	.....	....
25.8	....	B	.....	.....	.912
28.4	15.4	E	+ .034	+ .046	.912
29.3	....	E	.....	.....	.912
29.3	12.8	B	+ .086	— .002	....
30.4	14.3	E	+ .095	— .002	....
31.3	16.0	B	+ .111	+ .023	....
June 2.3	13.6	E	+ .139	+ .008	....
2.5	17.4	E	+ .128	+ .025	....
4.3	12.9	B	+ .098	+ .012	....

⁴ Apr. 28, 3^h, azimuth and level adjusted.⁵ May 9, focal distance of reticule adjusted.

TABLE I, A.

1888.	<i>Sid. Hour.</i>	<i>Obs'r.</i>	<i>b</i>	<i>c from Nadir</i>	<i>Microm. Setting.</i>
<i>Circle W</i>			<i>s</i>	<i>s</i>	<i>r</i>
June 4.5	17.4	B	+ .115	+ .018	....
5.9	....	B	.....	.....	.913
6.3	15.1	E	+ .111	.000	....
6.4	17.6	E	+ .130	— .045	....
7.4	15.1	B	+ .111	+ .012	....
7.5	....	B	+ .115	+ .007	....
8.3	13.4	E	— .029	— .029	....
8.4	17.5	E	+ .060	.....	....
11.2	....	E	.....	.....	.914
12.3	....	..	+ .176	.....	....
12.4	15.2	..	+ .168	.....	....
15.3	....	B	.....	.....	.913
15.3	13.5	B	+ .039	+ .015	....
15.5	18.6	B	+ .078	.....	....
16.3	14.6	E	+ .095	+ .006	....
16.5	19.3	E	+ .126	+ .014	....
21.4	15.4	B	+ .258	+ .078	....
22.4	16.7	E	+ .316	+ .019	....
22.5	18.8	E	+ .315	+ .030	....
23.3	....	B	.....	.....	.912
23.4	15.7	B	+ .320	+ .033	....
23.6	20.0	B	+ .298	+ .030	....

TABLE I, B.

1888.	Sid. Hour.	Obs'r.	b	c	1888	Sid. Hour.	Obs'r.	b	c
<i>Circle W.</i> June 29.4	....	E	s	s -0.103*	<i>Circle W.</i> Aug. 8.5	20.3	E	s -0.309	s +0.082
30.4 ¹	18.5	E	+0.290	- .118	10.2	....	E	.....	+ .051*
July 2.4 ²	15.8	B	+ .259	- .173	10.2	....	B	.....	+ .073*
2.6	20.0	B	+ .292	- .185	10.2	....	B	.....	+ .069*
2.9	....	E	.....	- .176*	16.4 ⁴	20.3	B	- .407	+ .078
9.4 ²	....	B	.....	- .010*	16.9	....	B	.....	+ .090*
9.6	20.2	E	+ .323	+ .001	17.4	0.0	E	- .393	+ .054
10.3	16.4	B	+ .341	- .006	20.4	18.4	B	- .350	+ .106
11.6	21.8	E	+ .300	+ .003	20.6	0.0	B	- .400	+ .064
14.2	....	E	.....	+ .012*	21.6	22.0	E	- .375	+ .052
15.4	17.5	B	+ .431	+ .023	21.9	....	B	.....	+ .090*
17.4	17.5	E	+ .378	+ .032	22.5	22.0	B	- .339	+ .081
18.6	21.7	B	+ .398	+ .032	23.5	22.0	E	- .381	+ .087
19.2	....	B	.....	+ .040*	23.7	2.0	E	- .415	+ .087
19.5	19.2	E	+ .407	+ .027	24.5	21.9	B	- .343	+ .093
20.4	17.6	B	+ .432	+ .030	29.5	22.0	B	- .355	+ .058
21.5 ³	20.0	E	- .219	+ .023	29.6	1.9	B	- .369	+ .052
24.4	17.6	B	- .199	+ .027	31.2	....	E	.....	+ .077*
25.2	....	E	.....	+ .066*	31.2	....	B	.....	+ .092*
26.4	17.8	E	- .286	+ .040	31.6	23.8	E	- .266	+ .134
27.4	19.2	B	- .355	+ .045	Sept. 1.5	22.8	B	- .294	.....
28.4	18.9	E	- .406	+ .054	4.5	22.6	E	- .332	+ .072
30.2	....	E	.....	+ .104*	5.5	23.3	E	- .292	+ .099
30.4	20.0	B	- .367	+ .071	6.5	23.5	B	- .315	+ .068
Aug. 2.4	21.2	E	- .386	+ .070	8.0	....	E	.....	+ .093*
3.2	....	B	.....	+ .086*	8.5	23.3	E	- .332	+ .094
3.2	....	E	.....	+ .070*	11.5	0.3	B	- .349	+ .077
3.4	19.3	B	- .405	+ .091	11.7	4.5	B	- .407	+ .082
4.4	19.4	E	- .337	+ .080	12.5	0.1	B	- .367	+ .075
6.4	19.8	B	- .356	+ .080	13.5	0.3	E	- .334	+ .060

¹ Collimation adjusted at 15^h 7. ² Collimation adjusted previous to this observation.³ Level and azimuth adjusted before observations began.⁴ From Aug. 15.8 to Aug. 16.2 the instrument was in position Circle East for determination of division errors.

TABLE I, B.

1888.	<i>Sid.</i> <i>Hour.</i>	<i>Obs'r.</i>	<i>b</i>	<i>c</i>	1888.	<i>Sid.</i> <i>Hour.</i>	<i>Obs'r.</i>	<i>b</i>	<i>c</i>
<i>Circle W.</i>	^h		^s	^s	<i>Circle W.</i>	^h		^s	^s
Sept. 19 5	0.5	B	-0.486	+0.111	Nov. 22.6	8.8	B	-0.340	+0.136
23.7	5.5	E	- .462	+ .094	23.7	9.8	B	- .373	+ .120
24.2	....	B	.....	+ .072*	30.7	....	E	- .439	+ .097
24.2	....	B	.....	+ .077*	Dec. 3.7	8.3	B	- .390	+ .117
27.9	....	E	.....	+ .077*	8.5	6.0	B	- .342	+ .114
27.9	....	B	.....	+ .073*	10.2 ³	....	E	.....	+ .105*
Oct. 7.6	3.0	B	- .526	+ .093	10.2 ⁴	....	E	.....	+ .092*
8.2	....	E	.....	+ .106*	10.7	....	E	- .502	+ .086
8.2 ¹	....	E	.....	+ .086*	11.9	....	B	.....	+ .094*
8.2 ²	....	B	.....	+ .151*	19.5	6.3	B	+ .051	+ .101
8.7	....	E	+ .012	.....	<i>Circle E.</i>				
9.6	....	B	- .036	+ .140	27.3	....	B	- .080	.....
11.0	....	E	.....	+ .133*	28.2	....	B	.....	- .103*
11.0	....	B	.....	+ .142*	29.4 ⁵	4.4	B	- .052	.....
13.6	4.3	B	- .114	+ .144	1889				
15.6	3.7	E	- .145	+ .139	Jan. 2.4	4.4	E	- .016	- .094
16.5	2.8	B	- .183	+ .135	18.2 ³	....	E	.....	- .078*
16.6	5.2	B	- .232	+ .155	18.2 ⁴	....	E	.....	- .092*
25.2	....	E	.....	+ .128*	22.5 ⁶	7.2	B	- .085	.....
30.6	6.0	B	- .242	+ .145	23.5 ⁶	7.8	E	- .126	.....
Nov. 2.7	7.4	E	- .301	+ .155	Feb. 1.4 ⁷	5.4	B	+ .003	- .083
3.0 ³	....	E	.....	+ .123*	9.2	....	B	.. ....	- .098*
3.0 ⁴	....	E	.....	+ .108*	26.2	....	E	.....	- .073*
10.6	4.2	B	- .468	+ .114	<i>Circle W.</i>				
12.2	....	B	.....	+ .121*	Mar. 13.2 ⁴	....	E	.....	+ .109*
12.7	8.0	E	- .364	+ .130	13.2 ³	....	E	.....	+ .114*
19.7	....	E	- .332	+ .108	19.3	7.3	B	+ .324	+ .101
22.2	....	B	.....	+ .112*	20.4	11.2	B	+ .307	+ .138
					20.9	....	B	.....	+ .112*

¹ Previous to this date and observation the collimation had been determined with opposing collimators. Beginning with this observation it was determined generally by reversal of the instrument on both collimators; but on this date only one collimator was used.

² Previous to this observation instrument disturbed by blow during reversal.

³ With opposing collimators. ⁴ By reversal on collimators.

⁵ Image west, but too close to measure; same at 1^h 0. ⁶ Image sensibly coincident; same at 3^h 8.

⁷ Distance of image measured at 3^h 5, but noted as the same at 5^h 4.

TABLE I, B.

1889.	Sid. Hour.	Obs'r.	b	c	1889.	Sid. Hour.	Obs'r.	b	c
<i>Circle W.</i>					<i>Circle E.</i>				
Mar 21.5	12.1	B	^s +0.272	^s +0.126	May 23.3	12.5	B	^s +0.034	^s
22.3	8.0	E	+ .229	+ .096	25.5	16.4	E	+ .037	.....
23.3	8.3	B	+ .203	+ .132	27.5 ¹	16.5	B	- .021	.....
25.5	8.0	E	+ .208	+ .133	June 1.	....	B	.....	+0.025*
28.3	....	E	+ .170	+ .112	5.5 ³	17.2	E	+ .028	.....
29.2 ¹	....	E	.....	+ .123*	11.5 ³	17.5	B	.010	.....
29.2 ²	....	E	.....	+ .136*	12.5	16.1	E	- .082	+ .008
29.4 ³	7.5	E	+ .128	.....	16.5 ⁸	17.3	B	- .043	.....
Apr 2.4	11.0	B	- .026	+ .123	19.5 ³	19.2	E	+ .049	.....
4.3	8.8	B	+ .028	.....	25.6 ⁹	20.0	B	- .014	+ .042
4.5	12.0	B	+ .010	+ .149	27.4	....	E	.....	+ .038*
5.0	....	B	.....	+ .118	29.6	20.0	E	- .054	+ .063
5.5	14.0	E	- .092	+ .127	July 1.5	20.2	B	- .062	+ .018
9.4	....	B	- .032	+ .143	5.5	20.0	E	+ .030	.....
13.3	10.3	B	+ .047	+ .139	7.5	20.2	B	- .074	+ .027
15.2	....	E	.....	+ .093*	8.2	....	E	.....	+ .041*
15.3	9.6	E	+ .003	+ .106	10.5	20.0	E	- .028	+ .051
19.5	14.5	B	- .042	+ .113	23.5 ¹⁰	20.5	E	+ .086	.....
21.6	16.3	E	+ .028	+ .133	Aug. 4.7	1.5	E	+ .072	.....
25.5	13.8	B	+ .058	+ .123	5.2	....	B	.....	+ .065*
<i>Circle E</i>					5.6	1.6	B	+ .068	.....
30.5 ⁴	16.5	E	- .047	.....	7.0	....	E	.....	+ .052*
May 1.2	....	..	.....	- .108*	15.7 ¹¹	1.6	E	- .017	.....
3. ⁵	....	E	.....	+ .016*	17.2	....	E	.....	+ .058*
3.5 ³	16.7	B	- .001	.....	21.6 ³	1.8	B	- .002	.....
6.2	....	B	.....	+ .011*	22.6 ³	1.6	E	+ .052	.....
6.4 ⁶	....	E	- .012	.....	24.6 ¹⁰	1.8	B	+ .010	.....
14.2	....	E	.....	+ .020*	27.6	1.1	B	+ .002	.....
22.3	....	B	.....	+ .030*	28.9	....	B	.....	+ .051*

¹ By reversal on collimators. ² With opposing collimators. ³ Image sensibly coincident.

⁴ Image slightly west. ⁵ Collimation adjusted before this observation.

⁶ High wind; image not visible. ⁷ At 15.0 eye-piece was hit with observing-chair. Image sensibly coincident. ⁸ Image east, barely visible. ⁹ At 17.0 eye-piece was hit with observing-chair.

¹⁰ Image slightly west. ¹¹ Image slightly east.

TABLE I, B.

1889.	Sid. Hour.	Obs'r.	b	c	1890.	Sid. Hour.	Obs'r.	b	c
<i>Circle E.</i> 29.6	1.8	E	^s -0.032	^s +0.045	<i>Circle E</i> Mar. 12.8 ³	....	B	^s	^s +0.085*
Sept. 20.6 ¹	....	B	- .230	+ .040	22.0	....	B	.....	+ .088*
21.5	1.8	B	- .208	+ .032	26.3	11.0	B	-0.232	+ .048
27.6	1.8	B	- .281	+ .063	28.3 ⁴	....	B	- .211	+ .082
28.2	....	B	.....	+ .073*	Apr. 2.3	8.0	B	- .219	+ .069
30.5	0.2	B	- .262	.....	4.3	8.0	B	- .191	+ .075
Oct. 1.5	0.3	B	- .294	+ .071	5.2	...	B	.....	+ .077*
8.9	....	B	.....	+ .088*	11.9	....	B	.....	+ .071*
8.9 ²	....	B	.....	+ .066*	25.2	....	B	.....	+ .074*
9.5	4.6	B	+ .250	+ .086	<i>Circle W.</i> 1891				
13.5	0.1	B	- .224	+ .045	Sep. 12.3	18.7	F	+ .030	- .042
15.8	....	B	.....	+ .072*	12.4	20.8	F	+ .017	.....
17.6	4.4	B	- .240	+ .053	12.4	22.1	F	+ .014	- .043
18.4	0.6	B	- .210	+ .035	13.3	19.0	F	+ .093	- .021
20.4	0.8	B	- .202	+ .056	13.4	22.0	F	+ .033	- .029
28.5	3.0	B	- .240	.....	15.3	18.4	F	- .015	- .021
Nov. 5.	....	B	.....	+ .075*	15.4	21.0	F	+ .004	- .055
9.7	8.0	B	- .350	+ .067	15.4 ⁵	21.0	F	.....	- .056
16.5	3.5	B	- .390	+ .087	15.4 ⁶	22.1	F	+ .002	[+ .002]
17.5	3.4	B	- .450	+ .060	16.3	19.0	F	- .012	- .037
25.5	3.5	B	- .412	+ .052	16.5	22.9	F	- .038	- .050
26.2	....	B	.....	+ .077*	17.3	18.8	F	+ .002	- .042
Dec. 6.5	4.0	B	+ .602	+ .087	17.4	21.7	F	- .030	- .062
8.5	3.6	B	+ .563	+ .024	17.5	22.9	F	- .020	- .079
19.2	....	F	.....	+ .071*	19.4 ⁷	22.0	F	+ .038	- .032
22.5	4.8	B	+ .621	+ .041	19.5	23.0	F	+ .021	- .095
30.6	7.8	B	+ .680	+ .060	21.4	21.0	F	+ .102	- .083
1890.					21.5	23.0	F	+ .103	- .084
Jan. 5.8	....	B	.....	+ .079*	22.3	18.5	F	+ .164	- .064

¹ At 21^h 9, previous to this observation, telescope knocked lightly against ladder.² Eye end of telescope hit with arm for slow motion between these two observations.³ Mar. 12 2. Level and azimuth adjusted ⁴ Level at 8^h 6; nadir at 13ⁿ 5.⁵ $b-c = +0.8060$ estimated. ⁶ Image not distinguishable.⁷ At 22^h 27^m clamp handle hit lightly with chair.

TABLE I, B.

1891.	Sid. Hour.	Obs'r.	b	c	1891.	Sid. Hour.	Obs'r.	b	c
<i>Circle W.</i> Sept. 22.4	20.8	F	^s +0.140	^s -0.053	<i>Circle E.</i> Oct. 21.3	21.9	F	^s -0.211	^s
22.5	23.4	F	+ .159	- .062	21.3	23.2	F	- .225	[-0.001]
<i>Circle E.</i>					21.4	1.0	F	- .230	[- .003]
23.4	21.9	F	+ .165	- .007	<i>Circle W.</i>				
23.5	23.7	F	+ .186	+ .019	22.3	20.9	F	- .175	- .069
25.3	18.3	F	+ .213	+ .028	22.4	23.4	F	- .126	- .025
25.4	21.8	F	+ .124	+ .023	23.3	21.0	F	- .156	- .036
25.5	23.2	F	+ .129	+ .024	23.4	23.2	F	- .193	- .049
26.3	18.4	F	+ .197	+ .036	23.5	2.3	F	- .205	- .009
26.4	20.3	F	+ .185	+ .005	<i>Circle E.</i>				
Oct 9.3	21.1	F	- .063	+ .037	Dec. 10.3	1.0	F	- .340	+ .050
9.4	23.3	F	- .045	+ .040	10.4	2.6	F	- .362	+ .048
9.5	0.8	F	- .030	+ .060	10.4	3.8	F	- .333	+ .080
10.3	19.2	F	- .076	+ .043	10.5	5.6	F	- .362	+ .045
10.3	21.9	F	- .057	+ .056	11.3	0.8	F	- .346	+ .036
10.5	0.7	F	- .085	+ .045	11.4	2.4	F	- .323	+ .059
12.3 ¹	21.1	F	- .131	[- .001]	11.4	3.8	F	- .303	+ .074
12.3	22.0	F	- .130	[- .007]	11.5	5.6	F	- .353	+ .021
12.5 ²	0.8	F	- .098	[+ .078]	12.3	0.9	F	- .346	+ .012
15.2	19.2	F	- .062	+ .059	16.3	0.9	F	- .296	+ .035
15.3	21.9	F	- .070	+ .059	16.4	2.5	F	- .314	+ .035
15.5	0.8	F	- .105	+ .035	16.5	5.0	F	- .338	+ .044
19.2	19.3	F	- .142	+ .044	17.3	1.0	F	- .257	+ .109
19.3	21.9	F	- .167	+ .024	17.4	2.5	F	- .348	+ .030
19.5	0.9	F	- .138	+ .043	17.5	5.6	F	- .316	+ .063
20.2	19.1	F	- .156	+ .024	18.3	0.9	F	- .306	+ .071
20.4	23.2	F	- .161	+ .029	18.4	2.5	F	- .355	+ .044
20.4	0.6	F	- .174	+ .008	18.4	3.8	F	- .388	+ .014
20.5	2.2	F	- .176	+ .020	18.5	5.5	F	- .372	+ .027
21.2 ³	19.2	F	- .135	[+ .050]	23.3	1.0	F	- .309	+ .058

¹ Image obscure; fresh south wind.² Image unsteady; strong north wind.³ Coll. obs. very unsatisfactory on this date; strong north wind.

TABLE I, B.

1891.	Sid. Hour.	Obs'r.	b	c	1892.	Sid. Hour.	Obs'r.	b	c
<i>Circle E.</i>			^s	^s	<i>Circle W.</i>			^s	^s
Dec. 23.4	2.4	F	-0.344	+0.022	14 4	5.8	F	+ .135	- .083
23.5	5 7	F	- .282	+ .073	21.2	1.0	F	+ .245	- .086
<i>Circle W.</i>					21.3	2.4	F	+ .207	- .110
27.3	0.8	F	- .266	- .048	21.4	4.7	F	+ .216	- .086
27.3	2.5	F	- .248	- .026	21.4	5.5	F	+ .216	- .102
27.4	4.7	F	- .222	+ .011	22.2	0.8	F	+ .148	- .107
27.5	5.7	F	- .233	- .019	Feb. 5.3	4.5	F	+ .017	- .065
1892.					5 4	6.5	F	+ .003	- .079
Jan. 6.3	0.9	F	- .278	- .041	5.5	8.5	F	+ .028	- .060
6.3	2.8	F	- .316	- .052	5.5	10.1	F	- .021	- .104
6.4	4.1	F	- .318	- .090	9.4	5.4	F	+ .038	- .087
9.3	0.8	F	- .215	- .060	9 5	8.1	F	+ .025	- .077
9.3	2 5	F	- .221	- .059	14.3	4.5	F	+ .132	- .055
9.4	3.6	F	- .208	- .041	14.4	6.7	F	+ .022	- .077
9.4	5.6	F	- .193	- .047	16.3	5.4	F	+ .210	- .064
14.3	1.0	F	+ .096	- .102	16.4	7.9	F	+ .212	- .065
14.3	3.8	F	+ .091	- .121	16 5	10.2	F	+ .240	- .043
14.4	4.8	F	+ .133	- .088					

TABLE II.—CLOCK CORRECTIONS, ETC.

1887.	Sid. Hour.	Obs'r.	$\Delta T+m$	H. Var. in 0. ^s 001	n	H. Var. in 0. ^s 001	Adop- ted c
<i>Circle W.</i>			^m ^s		^s		^s
Nov. 28.4	2 0	B	+0 0.130	0	+0.944	0	0.000
Dec. 29.3	2.5	B	2.223	0	+ .748	0	.000
1888.							
Jan. 27.4	5.5	B	12.483	0	+0.778	0	.000
Feb. 5.4	5.4	B	13.620	0	+1.230	0	.000
Apr. 17.4 ¹	12.2	B	34.13	0	-0.836	0	.000
17.4 ¹	12.2	E	34.23	0	- .813	0	.000
21.4 ¹	10.8	B	34.25	0	- .877	0	.000
21.4 ¹	10.8	E	34.34	0	- .861	0	.000

¹ Reduction by Mayer's formula. ΔT and a are given instead of $\Delta T+m$ and n .

TABLE II.

1888.	<i>Sid.</i> <i>Hour.</i>	<i>Obs'r.</i>	$\Delta T + m.$	<i>H. Var.</i> <i>in 0.^s001</i>	<i>n</i>	<i>H. Var.</i> <i>in 0.^s001</i>	<i>Adop-</i> <i>ted c</i>
<i>Circle W.</i>			^m ^s		^s		^s
Apr. 24.4	12.0	E	+0 33.834	+28	+0.676	+35	0.000
May 14.4 ¹	13.5	B	32.546	0	— .190	0	.000
15.4	13.5	B	32.514	0	— .280	0	.000
16.3	13.5	E	32.545	0	— .310	0	.000
19.3	14.0	B	32.300	0	— .287	0	.000
21.3	15.0	E	32.340	0	— .351	—28	.000
23.3	13.3	B	32.034	0	— .533	0	.000
25.3	14.8	B	31.548	—96	— .479	0	.000
28.4	16.5	E	30.725	0	— .513	+ 2	.000
29.3	14.8	B	30.404	—30	— .456	+ 6	.000
30.3	15.0	E	30.340	0	— .430	+12	.000
31.3	13.8	B	30.060	— 6	— .388	0	.000
June 2.3	15.4	E	29.920	— 5	— .434	—17	.000
4.3	15.2	B	29.603	—24	— .468	+16	.000
6.4	16.0	E	29.510	0	— .483	0	.000
7 4	15.8	B	29.217	+ 8	— .505	0	.000
8.3	15.0	E	29.080	—10	— .554	+ 3	.000
15.3	16.0	B	26.757	—10	— .016	0	.000
16.3	16.0	E	26.690	—16	— .061	— 6	.000
21.4	16.0	B	25.420	0	— .140	0	.000
22.4	17.0	E	25.210	—10	— .091	—19	.000
23.4	18.0	B	24.762	—46	— .036	0	.000
30.4	17.0	E	24.000	0	— .163	+ 5	— .105
July 2.4	18.5	B	23.625	—10	— .261	— 9	— .176
9.4	18.5	E	22.525	0	— .100	—16	— .010
10.4	18.1	B	22.288	—30	— .115	0	— .005
11.4	19.0	E	22.171	0	— .179	0	.000
15.4	18.7	B	21.816	0	— .033	0	+ .015
17.4	19.0	E	21.578	0	— .103	+16	+ .020
18.4	19.5	B	21.262	—20	— .074	+32	+ .025
19.4	20.5	E	21.184	0	— .055	0	+ .030

¹ Apr. 28, azimuth and level adjusted.

TABLE II.

1888.	<i>Sid.</i> <i>Hour.</i>	<i>Obs'r.</i>	$\Delta T + m$	<i>H. Var.</i> <i>in 0.^s001</i>	<i>n</i>	<i>H. Var.</i> <i>in 0.^s001</i>	<i>Adop-</i> <i>ted c</i>
<i>Circle W.</i>			^m ^s		^s		^s
July 20.4	19.5	B	+0 21.059	-22	-0.130	+14	+0.033
21.4	18.5	E	20.210	0	-.262	0	+.035
24.4	18.5	B	19.709	0	-.250	0	+.047
26.4	19.5	E	19.282	-12	-.222	0	+.055
27.4	20.2	B	19.018	0	-.338	+21	+.060
28.4	20.4	E	18.874	0	-.332	0	+.062
30.4	20.0	B	18.386	0	-.338	0	+.067
Aug. 2.4	20.3	E	18.125	0	-.339	0	+.075
3.4	21.0	B	17.728	0	-.334	0	+.075
4.4	20.5	E	17.770	0	-.325	0	+.077
6.4	21.0	B	17.204	0	-.340	0	+.078
8.4	21.8	E	17.007	-25	-.393	0	+.078
16.4	22.0	B	15.718	-7	-.352	+6	+.080
17.4	22.0	E	15.580	0	-.307	-10	+.080
20.4	22.0	B	15.121	0	-.373	0	+.080
21.4	22.8	E	14.960	-27	-.381	0	+.080
22.4	23.0	B	14.879	0	-.276	+10	+.082
23.5	23.1	E	14.890	-24	-.337	0	+.081
24.4	23.0	B	14.715	0	-.293	0	+.081
27.4	22.6	E	14.496	0	-.438	0	+.081
29.4	23.4	B	14.183	0	-.391	0	+.081
31.5	22.8	E	14.127	0	-.435	0	+.081
Sept. 1.5	23.7	B	13.900	-16	-.310	0	+.081
4.5	23.8	E	13.672	0	-.356	0	+.081
5.5	23.7	E	13.642	0	-.318	0	+.081
6.5	0.0	B	13.515	0	-.307	0	+.081
8.5	0.7	E	13.332	-34	-.353	-40	+.081
11.5	2.0	B	12.010	-84	-.240	+38	+.080
12.5	1.3	B	11.759	-60	-.176	0	+.080
13.5	2.0	E	11.728	0	-.141	+10	+.080
19.5	2.2	B	10.666	-42	-.264	0	+.080
23.5	3.0	E	10.000	-10	-.370	0	+.080

TABLE II.

1888.	<i>Sid.</i> <i>Hour.</i>	<i>Obs'r.</i>	$\Delta T+m$		<i>H. Var.</i> <i>in 0.^s001</i>	<i>n</i>	<i>H. Var.</i> <i>in 0.^s001</i>	<i>Adop-</i> <i>ted c</i>
<i>Circle W.</i>			m	s		s		s
Oct. 7.5	1.8	B	+0	7.780	0	−0.304	0	+0.080
8.5	3.3	E		8.069	− 1	+ .063	+13	+ .152
9.5	2.0	B		7.835	0	+ .046	+50	+ .153
13.5	2.7	B		7.020	+40	+ .035	+ 8	+ .131
15.5	2.5	E		6.531	−18	− .007	− 6	+ .137
16.5	2.6	B		6.134	−30	+ .073	0	+ .140
30.6	4.5	B		3.401	−10	− .080	+30	+ .129
Nov. 2.5	5.4	E		2.112	−35	− .027	0	+ .127
10.5	5.7	B	+0	1.445	−34	− .123	0	+ .120
12.5	6.0	E	−0	1.748	0	− .045	− 7	+ .117
16.5	5.0	B		3.156	0	+ .138	−65	+ .114
19.5 ¹	6.0	E		3.466	0	+ .133	....	+ .112
21.5	5.0	B		3.590	0	+ .067	0	+ .111
22.5 ¹	6.0	B		3.582	0	+ .010	....	+ .110
23.5	7.0	B		3.842	+18	+ .034	+ 6	+ .108
30.6 ¹	7.0	E		6.128	−30	+ .117	....	+ .104
Dec. 3.5 ²	6.5	B		6.761	....	+ .097	0	+ .102
8.5	8.0	B		8.449	−36	+ .109	+13	+ .098
10.6	8.3	E		9.149	−34	+ .038	+12	+ .096
11.6	7.0	B		9.517	0	+ .150	0	+ .094
19.5	7.0	B		10.700	0	+ .044	0	+ .090
<i>Circle E.</i>								
27.3	1.5	B		13.045	0	− .212	0	− .098
29.3	2.5	B		13.420	+11	− .102	0	− .098
1889.								
Jan. 2.2	2.7	E		14.238	+11	− .090	−12	− .098
10.2	3.0	B		17.795	0	− .078	0	− .098
22.3	5.5	B		22.537	0	− .185	+10	− .098
23.3	5.5	E		22.848	−24	− .224	0	− .098
Feb. 1.3	4.5	B		26.620	0	− .143	0	− .098
<i>Circle W.</i>								
Mar. 19.4 ¹	9.5	B		43.354	−26	+ .080	....	+ .111
20.4	8.5	B		43.938	0	+ .053	0	+ .110

¹ *n* from curve.² $\Delta T + m$ from curve.

TABLE II.

1889.	Sid. Hour.	Obs'r.	$\Delta T + m$	H. Var. in 0. ^s 001	n	H. Var. in 0. ^s 001	Adop- ted c
<i>Circle W.</i>			m s		s		s
Mar. 21.3	10.0	B	-0 44.558	-20	+0.027	0	+0.110
22.3	10.0	E	44.988	-19	-.084	-23	+ .110
23.3 ¹	10.0	B	45.559	-24	-.126	0	+ .110
25.3	9.0	E	46.640	0	-.191	0	+ .110
29.3	10.5	E	49.467	-25	-.050	+19	+ .110
Apr. 2.3	9.5	B	52.126	+50	-.226	-15	+ .110
4.3	10.0	B	53.404	+40	-.217	-20	+ .110
5.3	11.0	E	54.127	+24	-.043	-15	+ .110
13.3	11.5	B	59.880	+52	-.211	0	+ .110
15.3 ²	11.2	E	1 1.252	-16	-.285	0	+ .110
19.3	11.7	B	4.598	-59	-.418	0	+ .110
21.4 ³	12.0	E	6.382	0	-.283	0	+ .110
21.5 ⁴	14.5	E	4.600	0	-.253	+25	+ .110
25.4 ⁵	13.8	B	6.964	-31	-.290	....	+ .110
<i>Circle E.</i>							
30.4	13.9	E	10.763	-60	-.344	-12	- .110
May 3.4	13.5	B	12.510	-24	-.403	-3	+ .019
6.4	14.1	E	14.453	-12	-.697	+20	+ .019
23.3	14.5	B	31.507	-53	+.387	0	+ .019
25.3	14.5	E	33.190	-40	+.384	+44	+ .019
27.3 ⁶	14.5	B	35.288	....	+.370	0	+ .025
June 5.3	15.2	E	43.531	-15	+.240	0	+ .025
11.3	15.0	B	47.460	-28	+.233	+7	+ .025
12.3	14.5	E	47.488	0	+.160	0	+ .025
16.3	15.2	B	47.921	-25	+.107	-17	+ .025
19.4	16.8	E	48.313	-34	+.093	0	+ .025
25.3 ⁷	17.9	B	48.372	0	+.025	+9	+ .025
29.3	17.7	E	48.350	-30	-.006	-9	+ .039
July 1.3	17.7	B	48.432	-17	-.077	-10	+ .040
5.3	17.7	E	48.500	-9	+.040	+3	+ .040

¹ Clock rate assumed. ² 9h 2 to 9h 4 $n = -0.^s246. ³ Between 12h 55m and 13h 15m clock lost abnormally. ⁴ Second value of n adopted for period 13h 29m to 16h 5m. ⁵ n from curve. $\Delta T + m$ from curve. ⁶ The change from $+0.^s025$ to $+0.^s039$ was made June 25, 17h 0 Sid. T.$

TABLE II.

1889.	Sid. Hour.	Obs'r.	$\Delta T + m$	H. Var. in 0. ^s 001	n	H. Var. in 0. ^s 001	Adop- ted c
<i>Circle E.</i>			^m ^s		^s		^s
July 7.4	17.9	B	-1 48.481	0	-0.096	+ 9	+0.041
10.3	17.9	E	48.835	-35	+ .108	+ 4	+ .041
23.3	18.3	E	48 990	-50	+ .155	0	+ .041
Aug. 2.4	22.0	B	49.201	0	+ .178	+ 8	+ .056
4.4	22.0	E	49.130	+20	+ .258	+12	+ .056
5.4	22.0	B	49.046	0	+ .260	0	+ .056
11.4	20.5	E	48.590	0	+ .063	-40	+ .056
15.4	22.0	E	48.557	0	+ .146	-10	+ .056
21.4	22.0	B	48.406	-24	+ .179	0	+ .056
22.4	22.0	E	48.361	0	+ .210	0	+ .056
24.4	22.0	B	48.150	-16	+ .084	0	+ .056
27.4	22.0	B	48.010	0	+ .022	0	+ .056
29.4	22.2	E	47.894	-25	+ .051	0	+ .056
Sept. 20.3	22.0	B	48.028	-22	+ .185	0	+ .080
21.3	22.2	B	46.951	- 8	+ .280	0	+ .080
27.3	22.0	B	45.843	+15	+ .230	0	+ .080
Oct. 1.5	2.5	B	45.506	0	+ .264	+31	+ .080
4.5	2.2	B	44.685	-31	+ .293	+22	+ .080
7.5	2.0	B	43.836	0	+ .445	0	+ .080
9.5	2.0	B	43.134	0	+ .185	-35	+ .072
13.5	2.5	B	42.700	0	+ .442	0	+ .072
14.5	2.5	B	42.222	0	+ .326	0	+ .072
17.4	2.5	B	41.361	0	+ .247	0	+ .072
18.4	2.5	B	41.169	0	+ .298	0	+ .072
20.4	2.5	B	40.934	0	+ .490	-27	+ .072
27.5	4.3	B	39.490	0	+ .530	0	+ .072
29 3 ¹	4.0	B	39.030	+15	+ .300	+50	+ .072
Nov. 5.4	4.5	B	37.658	0	+ .464	0	+ .075
6.4	4.2	B	37.414	0	+ .307	+62	+ .075
9.4	6.0	B	36.905	0	+ .381	- 4	+ .075
16.4	5.9	B	35.920	+21	+ .474	+14	+ .076

¹ n constant previous to 4^h 0,

TABLE II.

1889.	Sid. Hour.	Obs'r.	$\Delta T + m$	H. Var. in 0. ^s 001	n	H. Var. in 0. ^s 001	Adop- ted c
<i>Circle E.</i>			^m ^s		^s		^s
Nov. 17.4	5.3	B	-1 35.685	- 4	+0.348	-15	+0.077
25.4	5.2	B	35.050	+31	+ .424	0	+ .077
30.5	6.0	B	38.584	0	+ .393	0	+ .077
Dec. 6.4	6.1	B	30.351	+18	+ .272	0	+ .077
8.4	6.2	B	30.122	0	+ .136	-16	+ .077
12.4 ¹	6.8	B	29.636	0	+ .209	+17	+ .077
18.4	6.0	B	29.231	0	+ .203	0	+ .077
22.4 ²	6.5	B	+0 0.142	0	+ .329	0	+ .078
30.4	6.5	B	-0 0.017	- 6	+ .462	0	+ .078
1890.							
Mar. 12.3 ³	9.0	B	+0 6.119	- 7	+ .166	0	+ .086
15.3	7.0	B	6.104	0	+ .520	0	+ .086
17.3	10.4	B	6.700	+14	+ .186	-14	+ .086
21.3	8.5	B	6.895	0	- .106	0	+ .086
26.3	8.5	B	6.939	0	+ .090	0	+ .086
28.3	10.2	B	6.907	- 8	+ .136	0	+ .086
29.3	8.5	B	6.892	0	+ .096	+35	+ .086
31.4 ⁴	10.0	B	7.173	0	+ .129	0	+ .086
Apr. 1.3	9.0	B	7.438	+14	+ .140	0	+ .074
2.3	8.5	B	8.642	-19	+ .075	0	+ .074
4.3	10.0	B	7.601	- 5	+ .076	+ 7	+ .074
10.3	10.0	B	7.206	-12	+ .138	-10	+ .074
11.3	9.0	B	7.123	0	+ .076	0	+ .071
16.3	11.1	B	7.641	- 7	+ .058	0	+ .072
17.3	11.0	B	7.582	-28	+ .086	-22	+ .072
19.3	10.6	B	7.731	-18	+ .130	0	+ .072
20.3	11.0	B	7.787	0	+ .142	-51	+ .072
<i>Circle W.</i>							
1891.							
Sept. 12.4	20.0	F	+2 12.439	+ 9	+ .253	0	- .042
13.4	19.7	F	12.556	-53	+ .337	0	- .025
15.4	19.6	F	12.942	+ 6	+ .245	0	- .038

¹ H. Var. of n previous to 6^h 1 = - 49. ² Dec. 22.0, clock cleaned. ³ Mar. 12.2, azimuth and level adjusted. ⁴ The change from + 0.^s086 to + 0.^s074 was made Mar. 31, 10^h 55 Sid. T.

TABLE II.

1891.	Sid. Hour.	Obs'r.	$\Delta T + m$	H. Var. in 0. ^s 001	n	H. Var. in 0. ^s 001	Adop- ted c
<i>Circle W.</i>			^m ^s		^s		^s
Sept. 16.4	20.3	F	+2 13.088	+ 8	+0.241	0	-0.044
17.4	20.6	F	13.350	+ 9	+ .196	+14	- .061
19.3	20.1	F	13.674	+ 7	+ .221	0	- .084
21.3	20.6	F	13.971	+ 7	+ .264	+ 6	- .088
22.3	20.5	F	14.213	0	+ .244	0	- .060
<i>Circle E.</i>							
23.3	20.5	F	14.222	0	+ .219	0	+ .032
25.4 ¹	21.0	F	14.349	-38	+ .341	....	+ .032
26.3	19.0	F	14.592	0	+ .413	0	+ .032
Oct. 9.4	22.0	F	16.697	+12	+ .594	0	+ .032
10.3	21.6	F	16.907	-28	+ .569	+34	+ .032
12.3 ¹	21.5	F	17.441	0	+ .530	....	+ .032
15.4	22.0	F	17.865	-15	+ .620	0	+ .032
19.3	21.5	F	18.795	+12	+ .643	0	+ .032
20.3	22.4	F	19.070	+13	+ .621	0	+ .032
21.3 ¹	21.7	F	19.364	+11	+ .519	....	+ .032
<i>Circle W.</i>							
22.3	22.0	F	19.751	0	+ .713	0	- .039
23.4	23.3	F	19.967	0	+ .611	-24	- .039
<i>Circle E.</i>							
Dec. 10.4	3.2	F	33.107	+12	+ .604	0	+ .050
11.4	3.1	F	33.608	+15	+ .597	0	+ .050
16.4	2.8	F	34.721	0	+ .653	0	+ .050
17.4	3.0	F	35.004	+13	+ .735	0	+ .050
18.4	3.0	F	35.463	+13	+ .710	0	+ .050
23.4	3.0	F	36.780	0	+ .656	0	+ .050
<i>Circle W.</i>							
27.4	3.0	F	37.550	+ 8	+ .874	0	- .020
1892.							
Jan. 6.3	2.4	F	39.922	+12	+ .831	0	- .061
9.3	3.0	F	41.069	+29	+ .744	0	- .053
14.3	3.0	F	44.054	0	+1.050	0	- .098

¹ Values of n taken from plotted curve.

TABLE II.

1892.	<i>Sid. Hour.</i>	<i>Obs'r.</i>	$\Delta T + m$	<i>H. Var. in 0.^s001</i>	<i>n</i>	<i>H. Var in 0.^s001</i>	<i>Adop- ted c</i>
<i>Circle W.</i>			m s		s		s
Jan. 21.3	3.0	F	+2 48.210	0	+1.172	0	— .096
Feb. 5.4	6.9	F	53.467	+10	+0.989	0	— .077
9.4	6.6	F	54.095	+ 9	+1.127	0	— .082
16.4 ¹	7.7	F	56.905	+20	+1.068	....	— .057

¹ Values of *n* taken from plotted curve.

TABLE III.—OBSERVED VALUES OF THE NADIR POINT.

1887.	<i>Obs'r.</i>	<i>Sid. Hour.</i>	<i>Nadir Point.</i>	1887.	<i>Obs'r.</i>	<i>Sid. Hour.</i>	<i>Nadir Point.</i>
<i>Circle W.</i>			125° 28'	<i>Circle W.</i>			125° 28'
Nov. 1.3	B	....	13.09	Dec. 11.3	B	....	15.98
1.4	B	....	13.04	12.9	B	17.5	16.64
2.3	B	....	13.14	13.3	B	2.0	15.82
2.4	B	....	13.19	13.4	B	....	16.12
3.3	B	....	13.32	16.3	B	1.7	14.18
3.4	B	0.4	13.48	28.3	B	2.0	11.20
4.4	B	0.0	11.63	29.3	B	1.0	9.98
10.4	B	0.5	10.31	29.4	B	4.5	8.98
10.4	B	....	10.55	1888.			
11.4	B	0.1	10.06	Jan. 11.	B	....	10.47
11.4	B	....	8.90	18.3	B	3.4	17.61
15.3	B	23.2	11.28	18.4	B	5.2	17.62
15.4	B	1.7	11.17	Feb. 5.3	B	4.8	17.98
17.3	B	....	9.10	7.2	B	1.8	20.73
17.4	B	....	9.57	7.3	B	5.0	19.38
21.	B	....	11.30	7.4	B	7.5	20.08
22.7	B	8.1	12.35	8.	B	....	16.89
28.4	B	0.9	4.57	Apr. 24.5 ²	E	....	17.50
28.	B	....	2.73	May 14.4	B	12.0	13.56
29.	B	....	6.05	14.5	B	15.5	14.93

² From levelled collimators, north and south; mean of four determinations.

TABLE III.

1888.	Obs'r.	Sid. Hour.	Nadir Point.	1888.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle W.</i>			125° 28'	<i>Circle W.</i>			125° 28'
May 15.4	B	12.2	14.71	June 6.5	E	17.3	16.55
15.5	B	15.2	14.71	6.6	E	17.3	16.20
16.4	E	12.1	13.36	7.4	B	14.8	16.14
16.5	E	15.6	14.32	7.5	B	16.2	15.99
18.5	E	....	12.42	7.6	B	17.4	15.88
19.4	B	12.5	12.49	8.4	E	13.5	15.32
19.5	B	15.5	12.90	8.5	E	16.2	14.07
21.4	E	12.8	11.59	8.5	E	17.3	13.68
21.5	E	16.4	12.21	9.4	B	13.7	14.56
23.4	B	12.8	12.95	15.4	B	14.6	15.70
25.4	B	12.5	12.49	15.5	B	16.5	15.37
25.5	B	14.2	11.96	15.5	B	18.4	15.55
25.6	B	16.7	11.71	16.4	E	14.7	16.40
28.4	E	15.4	12.40	16.5	E	16.8	15.97
28.5	E	18.4	14.02	16.6	E	19.2	16.52
29.4	B	12.8	13.51	21.4	B	15.2	19.77
29.5	B	14.3	13.67	21.4	B	16.5	19.27
29.6	B	16.3	12.65	22.4	E	15.0	20.27
30.4	E	13.5	15.75	22.5	E	18.5	20.57
30.4	E	15.0	16.82	23.4	B	16.5	19.66
30.5	E	17.2	15.67	23.5	B	19.8	18.77
31.3	B	12.4	14.99				125° 29'
31.4	B	14.4	14.46	30.4 ¹	E	15.8	23.00
31.5	B	15.6	15.19	30.5	E	18.5	22.68
June 2.4	E	12.6	16.38	July 2.5	B	17.3	33.30
2.5	E	15.0	16.84	2.6	B	20.1	32.69
2.6	E	17.2	17.43	5.4	E	16.5	33.06
4.4	B	13.6	16.86	9.4	E	16.8	34.00
4.5	B	15.0	16.70	9.5	E	20.0	35.48
4.6	B	17.2	15.10	10.4	B	16.7	32.91
6.4	E	15.2	14.77	10.5	B	20.2	32.66

¹ On June 30th stars were bisected on the wire farther from the micrometer head, and the nadir for that, and subsequent dates is reduced to that wire.

TABLE III.

1888.	Obs'r.	Sid. Hour.	Nadir Point.	1888.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle W.</i>			125° 29'	<i>Circle W.</i>			125° 29'
July 11.4	E	16.3	33.00	Aug. 2.4	E	19.2	27.20
11 5	E	20.0	32.69	2.5	E	21.2	26.85
11.6	E	21.5	34.15	3.4	B	19.1	25.21
15.4	B	17.9	36.82	3.5	B	21.3	24.72
15.5	B	19.4	36.19	3.6	B	22 9	25.14
17.4	E	17.3	34.89	4.4	E	19.3	28.68
17.5	E	19.8	35.97	4.5	E	21.8	27.96
17.6	E	21.8	36.96	6.4	B	19.3	27.31
18.4	B	17.4	35.33	6.6	B	23.0	26.48
18.5	B	....	35.30	8.4	E	20.0	31.56
18.6	B	21.8	34.43	8.6	E	23.3	30.21
19.5	E	19.8	35.64	16.5	B	20.2	28.79
19.6	E	....	35.28	16.6	B	23.8	27.47
20.4	B	17.8	36.96	17.5	E	20.4	27.91
20.5	B	19.3	37.23	17.6	E	23.8	30.14
20.6	B	21.8	37.41	20.5	B	20.5	28.73
21.4 ¹	E	17.1	27.51	20.6	B	23.8	28.08
21.5	E	19.1	26.05	21.5	E	21.2	29.44
23 4	B	....	27.76	21.6	E	23.8	28.04
24.4	B	17.5	28.59	22.5	B	21.2	31.89
24.5	B	19.7	29 00	22.6	B	22.7	31.41
26.4	E	17.8	28.55	22.7	B	1.7	30.72
26.5	E	19.5	28.20	23.5	E	21.0	30.28
26.6	E	21.9	27.42	33.6	E	22.9	30.44
27.4	B	19.0	26.90	23.7	E	1.6	30.30
27.5	B	21.9	27.44	24.5	B	21.8	29.86
28.4	E	18.8	27.20	24.7	B	....	29.80
28.6	E	22.7	27.00	27.5	E	21.8	32.68
30.4	B	19.3	26.13	27.6	E	23.8	31.34
30.5	B	21.0	25.33	29.5	B	22.2	30.30

¹ Azimuth and level adjusted before observations began.

TABLE III.

1888.	Obs'r.	Sid. Hour.	Nadir Point.	1888.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle W.</i>			125° 29'	<i>Circle W.</i>			125° 29'
Aug. 29.7	B	1.7	30.23	Oct. 8.7	E	5.3	27.70
31.5	E	22.3	32.53	9.5	B	1.2	29.85
31.6	E	23.8	31.24	9.6	B	2.8	30.65
Sept. 1.5	B	22.2	31.65	13.5	B	0.9	28.50
1.5	B	23.2	32.22	13.6	B	2.3	29.34
1.7	B	1.8	31.85	13.7	B	4.3	29.70
4.5	E	22.3	33.19	15.5	E	1.0	27.89
4.7	E	2.0	33.53	15.6	E	2.6	28.14
5.5	E	23.2	33.24	15.6	E	3.7	28.12
5.7	E	1.8	31.93	16.5	B	1.1	26.67
6.5	B	23.1	33 02	16.5	B	2.7	27.01
6.7	B	2.1	32.90	16.6	B	4.8	27.93
8.5	E	23 2	31.05	30 5	B	3.4	28.02
8.7	E	2.2	30.16	30.6	B	5.7	27.99
11.5	B	23.7	30.56	Nov. 2.5	E	3.7	26.84
11.6	B	1.9	29.76	2.6	E	5.4	26.79
11.7	B	4.3	28.57	2.7	E	7.1	27.18
12.5	B	0.0	33.02	10.5	B	3.4	26.96
12.7	B	....	31.91	10.6	B	5.2	26.88
13.5	E	0.0	31.63	10.7	B	8.0	26.53
13.6	E	2.3	31.38	12.5	E	3.8	26.49
13.7	E	4.2	31.85	12.7	E	8.0	26.70
19.5	B	0.3	27.48	16.5	B	4.5	25.38
19.6	B	2.2	27.09	16.6	B	6.5	26.67
19.7	B	4.3	26.90	19.5	E	4.3	27.08
23.5	E	0.3	28.21	19.7	E	8.5	27.47
23.6	E	1.9	27.45	21.5	B	4.8	28.29
23.7	E	5.2	26.44	22.5	B	4.3	29.41
Oct. 7.5	B	0.8	29.23	22.7	B	8.5	29.90
7.6	B	2.7	28.50	23.5	B	4.4	28.13
8.5	E	1.0	29.86	23.7	B	9.6	28.40
8.6	E	3.3	28.50	30.5	E	5.6	26.95

TABLE III.

1888.	Obs'r.	Sid. Hour.	Nadir Point.	1889.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle W.</i>			125° 29'	<i>Circle W.</i>			125° 29'
Nov. 30.7	E	9.9	27.39	Mar. 20.4 ¹	B	9.0	5.60
Dec. 3.5	B	5.3	27.98	20.4 ²	B	9.0	5.81
3.6	B	7.8	28.32	20.5	B	10.8	6.19
8.5	B	5.8	27.15	21.3	B	7.4	8.03
8.7	B	9.6	27.52	21.4	B	9.3	7.64
10.5	E	6.4	27.36	21.5	B	11.9	7.77
10.7	E	9.9	28.31	22.3	E	7.8	8.78
11.5	B	6.3	27.10	22.5	E	10.8	8.95
19.5	B	6.2	27.00	22.6	E	12.7	9.11
<i>Circle E.</i>				23.3	B	7.8	7.50
27.3	B	....	22.25	23.5	B	10.8	7.98
29.3	B	1.0	20.94	23.6	B	13.1	8.25
29.5	B	4.3	20.88	25.3	E	7.8	7.76
1889.				25.5	E	10.2	8.14
Jan. 2.3	E	1.0	20.25	28.3	E	7.8	7.94
2.5	E	4.3	20.30	29.3	E	7.8	6.41
3.3	B	1.0	19.21	29.5	E	10.9	6.42
3.4	B	3.5	19.44	29.6	E	13.5	6.45
10.3	B	2.5	21.99	Apr. 2.3	B	8.5	7.28
10.4	B	4.4	22.25	2.4	B	10.8	6.68
22.3	B	3.8	17.56	4.3	B	9.2	6.09
22.4	B	7.2	16.96	4.4	B	10.9	5.56
23.3	E	3.8	16.89	4.5	B	12.0	5.70
23.5	E	7.9	16.31	5.3	E	9.6	7.09
Feb. 1.3	B	3.7	17.11	5.5	E	14.2	5.23
1.4	B	5.3	16.66	13.3	B	10.3	6.36
<i>Circle W.</i>				13.5	B	13.9	3.33
Mar. 19.3	B	7.3	7.32	15.3	E	9.6	6.21
19.5	B	11.3	6.40	15.4	E	11.3	6.53
19.5	B	12.7	5.95	15.5	E	13.9	6.75
20.3	B	7.4	6.96	19.3	B	9.8	4.91

¹ Microscopes read by E.² Microscopes read by B.

TABLE III.

1889.	Obs'r.	Sid. Hour.	Nadir Point.	1889.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle W.</i>			125° 29'	<i>Circle E.</i>			125° 29'
Apr. 19.4	B	11.0	5.21	June 5.4	E	14.7	16.01
19.4	B	12.6	3.61	5.5	E	17.2	16.10
19.5	B	14.4	3.24	11.3	B	13.3	15.19
21.3	E	11.4	3.64	11.4	B	15.1	14.54
21.4	E	13.7	3.50	11.5	B	17.3	14.75
21.5	E	16.3	4.81	12.3	E	13.0	13.85
25.3	B	12.1	6.47	12.4	E	14.8	14.01
25.4	B	13.8	6.07	12.5	E	16.1	13.08
25.6	B	16.8	6.81	16.3	B	13.7	12.65
<i>Circle E.</i>				16.4	B	15.1	12.32
30.3	E	11.5	16.21	16.5	B	17.2	12.59
30.4	E	13.3	16.14	19.3	E	14.6	13.81
30.6	E	16.4	15.82	19.4	E	17.2	12.85
May 3.3	B	11.2	15.50	19.5	E	19.2	13.01
3.4	B	13.8	15.60	25.3	B	15.6	14.05
3.6	B	16.3	16.33	25.4 ²	B	17.8	13.73
6.3	E	11.2	16.26	25.5	B	19.9	13.24
6.4	E	13.7	15.67	29.3	E	15.7	12.81
6.6	E	16.3	16.18	29.4	E	17.8	11.80
23.3	B	12.7	15.76	29.5	E	19.9	12.00
23.4	B	14.7	15.42	July 1.3	B	15.7	14.35
23.5	B	16.6	15.83	1.4	B	17.9	14.05
24.3	E	12.8	16.03	1.5	B	19.9	14.60
25.3	E	12.8	15.84	5.3	E	15.6	15.93
25.4	E	14.3	16.83	5.4	E	17.8	15.74
25.5	E	16.3	16.96	5.5	E	20.0	15.57
27.3	B	12.6	16.32	7.3	B	15.8	16.21
27.4 ¹	B	14.2	16.63	7.4	B	17.8	15.81
27.5	B	16.3	16.18	7.5	B	19.9	15.23
June 5.3	E	13.1	16.43	10.3	E	15.8	14.50

¹ After this observation eye-piece was hit against observing-chair.² At 17^h eye piece was hit

TABLE III.

1889.	Obs'r.	Sid. Hour.	Nadir Point.	1889.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle E.</i>			125° 29'	<i>Circle E.</i>			125° 29'
July 10.4	E	17.8	14.35	Aug. 24.5	B	21.1	I
10.5	E	20.0	14.71	24.6	B	0.3	19.38
23.3	E	15.6	15.81	24.7	B	1.6	19.09
23.4	E	17.8	15.81	27.4	B	19.1	21.18
23.5	E	20.2	15.73	27.5	B	22.2	20.26
Aug. 2.4	B	19.3	17.77	27.6	B	0.3	19.67
2.5	B	22.8	16.98	27.7	B	1.6	20.11
2.7	B	1.4	17.02	29.4	E	19.1	19.22
4.4	E	19.3	18.64	29.5	E	21.2	19.56
4.5	E	22.4	17.17	29.6	E	23.1	19.06
4.6	E	23.2	17.03	29.7	E	1.6	18.21
4.7	E	1.5	17.44	Sept. 6.4 ¹	B	19.2	22.27
5.4	B	19.2	17.85	20.3	B	19.1	22.99
5.5	B	21.9	17.90	20.4	B	21.9	23.81
5.6	B	23.1	18.31	20.5	B	23.2	23.26
5.7	B	1.6	17.88	20.6	B	1.7	23.56
11.4	E	19.5	16.70	21.3	B	19.4	23.92
11.5	E	21.6	17.20	21.4	B	21.9	23.52
15.4	E	19.3	18.05	21.5	B	23.1	23.62
15.5	E	22.2	17.63	21.6	B	1.8	23.68
15.6	E	23.8	18.15	2.5	B	....	19.09
15.7	E	1.6	17.58	2.5	B	....	19.47
21.4	B	19.1	17.79	27.3	B	19.0	23.82
21.5	B	21.9	17.94	27.4	B	21.2	22.69
21.6	B	22.8	18.47	27.5	B	23.1	22.13
21.7	B	1.6	17.74	27.6	B	1.8	21.93
22.4	E	19.7	17.82	30.5	B	0.2	20.31
22.5	E	22.2	17.41	Oct. 1.5	B	0.1	21.10
22.6	E	0.3	17.48	1.5	B	2.0	21.42
22.7	E	1.6	17.81	1.6	B	4.6	20.48
24.4	B	19.0	19.51	4.5	B	0.2	22.03

¹ Last date on which E read microscopes. From Sept. 20 to Nov. 6, inclusive, B observed alone.

TABLE III.

1889.	Obs'r.	Sid. Hour.	Nadir Point.	1889.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle E.</i>			125° 29'	<i>Circle E.</i>			125° 29'
Oct. 4.5	B	2.0	21.48	Nov. 6.6	B	5.8	20.09
4.6	B	4.2	20.85	6.6	B	6.5	20.03
6.5	B	....	20.93	9.5 ¹	B	2.8	20.22
7.5	B	0.2	21.29	9.5	B	3.7	20.48
7.6	B	3.4	20.89	9.6	B	5.7	21.65
7.6	B	4.5	20.59	9.7	B	7.8	21.09
9.5	B	0.2	22.64	15.5	B	....	20.91
9.5	B	2.3	21.67	16.5	B	3.5	20.41
9.6	B	4.6	21.28	16.6	B	5.7	19.82
13.5	B	0.1	22.88	16.7	B	8.0	20.07
13.5	B	2.4	22.56	17.5	B	3.4	20.75
13.6	B	4.6	22.17	17.6	B	5.4	20.63
14.5	B	0.7	23.43	17.7	B	7.7	20.14
14.5	B	2.4	23.64	25.5	B	3.5	20.43
14.6	B	4.4	22.40	25.5	B	5.2	19.67
17.4	B	0.3	23.82	25.6	B	6.8	20.19
17.5	B	2.4	23.35	30.5	B	4.0	19.34
17.6	B	4.4	23.60	30.6	B	5.7	19.27
18.4	B	0.6	22.68	30.7	B	7.8	18.66
18.5	B	3.2	23.41	Dec. 6.5	B	3.9	17.74
18.6	B	4.3	23.46	6.6	B	5.2	17.33
20.4	B	0.7	24.66	6.7	B	7.8	17.14
20.5	B	3.2	23.93	8.5	B	3.6	12.82
20.6	B	5.2	22.97	8.6	B	5.4	13.44
27.4	B	....	22.47	8.7	B	7.8	13.76
29.4	B	....	20.47	12.5	B	4.8	13.02
29.5	B	3.2	20.12	12.6	B	7.0	12.91
29.6	B	5.6	20.46	12.6	B	7.8	12.91
Nov. 5.5	B	3.5	20.57	18.5	B	3.8	10.66
5.6	B	5.8	19.54	18.5	B	5.4	11.49
6.5	B	3.8	20.56	18.6	B	7.8	11.21

¹ F begins reading microscopes.

TABLE III.

1889.	Obs'r.	Sid. Hour.	Nadir Point.	1890.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle E.</i>			125° 29'	<i>Circle E.</i>			125° 29'
Dec. 20.5	B	4.9	13.26	Mar. 29.4	B	9.6	24.01
22.5	B	4.8	12.95	31.3	B	7.4	25.64
22.6	B	7.0	12.23	31.4	B	9.2	25.54
22.6	B	7.9	12 16	31.5 ¹	B	10.7	25.44
26.5	B	4.7	14.08	31.6	B	13.4	25.42
30.5	B	4.8	13.06	Apr. 1 3	B	7.8	25.38
30.6	B	7.0	13.68	1.4	B	9.2	24.57
30.6	B	7.8	13.66	1.5	B	10.7	24.79
1890.				2.3	B	7.9	24.38
Mar. 12.3	B	6.5	27.08	2.4	B	9.8	23.56
12.4	B	7.9	26.87	4.3	B	8.0	22.96
12.5	B	10.1	26.24	4.3	B	9.9	22.67
12.6	B	13.5	26.08	4.4	B	11.9	23.80
15.3	B	6.4	28.76	4.5	B	13.5	23.47
15.4	B	7.1	28.87	10.3 ²	B	8.2	24.08
15.4	B	8.0	28.24	10.4	B	10.0	23 10
17.3	B	6.9	25.43	10.5	B	12.6	23.19
17.4	B	9.3	25.17	11.3	B	8.6	21.60
17.5	B	11.0	24.94	11.4	B	9.7	22.13
17.6	B	13.5	25.03	16.3	B	9.0	24.15
21.3	B	7.0	24.40	16.4	B	10.9	23.32
21.4	B	9.5	24.57	16.5 ³	B	13.6	23.63
26.3	B	7.2	24.45	17.3	B	9.1	23.99
26.4	B	9.2	23.94	17.4	B	10.9	23.59
26.5	B	11.0	24.10	17.5	B	13.6	23.45
28.3	B	7.7	24.78	19.3	B	9.6	23.72
28.4	B	9.9	24.51	19.4	B	11.8	24.45
28.5	B	11.2	24.35	19.5	B	12.6	24.77
28.6	B	13.5	24.08	20.3	B	9.6	24.59
29.3	B	7.4	24.78	20.4	B	11.9	23.65

¹ 9^h 6, eye-piece was hit against observing-chair. ² 8^h 2, image unsteady; 10^h 0 and 12^h 6, image good and steady. ³ Apr. 16, 13^h 6 and Apr. 17, 9^h 1, B observed alone. Apr. 17, 10^h 9, microscopes read by F. Apr. 17, 13^h 6 to Sept. 9 inclusive, B observed alone.

TABLE III.

1890.	Obs'r.	Sid. Hour.	Nadir Point.	1891.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle E.</i>			125° 29'	<i>Circle W.</i>			125° 29'
July 2.4 ¹	B	17.2	9.89	Sep. 12.3	F	18.7	4.39
2.5	B	19.1	9.91	12.4	F	22.1	4 33
4.4	B	16.4	9.57	13.3	F	18.4	5.72
4.5	B	18.8	10.84	13.4	F	22.0	2.74
9.4	B	15.3	12.57	14.2 ²	C	....	30.20
9.5	B	16.8	13.43	15.3	F	18.4	29.85
9.5	B	17.8	14.22	15.4	F	21.0	29.89
10.4	B	16.1	13.30	15.4	F	22.1	29.30
12.4	B	16.0	10.96	16.3	F	19.0	30.00
12.4	B	17.4	10.65	16.4	F	21.1	29.60
12.5	B	....	10.85	16.5	F	22.9	29 47
15.4	B	17.2	11.45	17.2	C	....	30.24
15.5	B	18.4	11.73	17.3	F	18.5	29.61
18.5	B	18.3	10.97	17.4	F	21.7	28.79
18.5	B	18.9	11.86	17.5	F	22.9	28.74
27.4	B	17.2	14.27	18.2	C	....	29.12
27.5	B	18.2	14.25	19.2	C	....	27.17
Aug. 4.4	B	17.9	14.90	19.3	F	20.0	30.14
4.5	B	19.2	14.92	19.4	F	22.0	30.12
26.4	B	18.3	14.70	19.5	F	23.0	30.01
26.5	B	19.9	15.14	21.3 ³	F	18 5	31.43
27.4	B	18.4	15.12	21.4	F	21.0	31 46
27.4	B	19.1	15.26	21.5	F	22.8	31.58
27.5	B	20.0	15.33	22.3	F	18.6	31.58
30.4	B	18.8	15.31	22.4	F	20.9	32.85
30.4	B	19.0	15.17	22.5	F	23.2	32.55
<i>Circle W.</i>				23.1	C	....	33.18
Sept. 6.4	B	....	8.21	<i>Circle E.</i>			125° 36'
8.4	B	....	6.16	23.3	F	20.3	39.53
9.4	B	19.7	7.75	23.4	F	23.0	39.52

¹ From July 2 to Sept. 9, all observations were for flexure, on stars direct and reflected.² Sept. 13.9. Position of microscopes on holder changed. ³ At 19^h 53^m eye-piece hit against chair.

TABLE III.

1891.	Obs'r.	Sid. Hour.	Nadir Point.	1891.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle E.</i>			125° 36'	<i>Circle E.</i>			125° 36'
Sep. 24.1	C	....	30.85	Oct. 21.2	F	19.2	34.06
25.1	C	....	31.66	21.3	F	20.9	33.45
25.3	F	18.5	33.57	21.3	F	21.9	34.02
25.4	F	21.0	33.80	21.4	F	0.7	33.59
25.5	F	23.5	34.38	<i>Circle W.</i>			125° 29'
26.3	F	18.7	33.76	22.3	F	28.8	24.62
26.3	F	20.2	33.77	22.4	F	23.2	25.13
Oct. 9.3	F	20.2	34.76	23.3	F	20.9	26.33
9.4	F	21.8	34.56	23.3	F	21.8	26.50
9.5	F	0.8	34.46	23.4	F	23.9	26.05
10.2	F	19.2	35.90	23.5	F	2.2	25.51
10.3	F	21.9	35.10	24.3 ¹	C	22.2	25.60
10.4	F	23.1	34.88	24.4	C	0.0	25.34
10.5	F	0.8	34.87	24.5	C	2.0	24.11
12.2	F	19.5	34.22	27.3	F	22.1	24.82
12.3	F	21.9	34.65	27.4	F	0.0	23.42
12.4	F	23.2	34.34	27.5	F	1.7	21.11
12.5	F	0.7	34.82	28.3	F	21.9	24.85
15.2	F	19.3	34.32	28.4	F	23.9	24.63
15.3	F	21.0	33.51	28.5	F	2.4	23.61
15.3	F	21.9	33.61	29.3	F	21.9	25.93
15.5	F	0.8	34.20	29.4	F	0.0	24.51
19.2	F	19.3	34.38	29.5	F	2.3	25.53
19.3	F	21.0	34.61	Nov. 2.3	F	22.2	23.96
19.3	F	21.9	34.78	2.4	F	0.0	23.22
19.4	F	23.2	34.71	2.5	F	2.4	21.12
19.5	F	0.8	34.94	4.2	F	20.2	26.09
20.2	F	19.2	32.81	4.3	F	21.7	26.48
20.3	F	21.0	32.03	5.2	F	20.2	25.23
20.4	F	0.5	32.75	5.3	F	21.8	25.08
20.5	F	2.0	32.44	5.4	F	23.3	24.54

¹Oct. 24 to Nov. 30 inclusive, all observations were upon stars direct and reflected, for flexure.

INTRODUCTION.

TABLE III.

1891.	Obs'r.	Sid. Hour.	Nadir Point.	1891.	Obs'r.	Sid. Hour.	Nadir Point.
<i>Circle W.</i>			125° 29'	<i>Circle E.</i>			125° 36'
Nov. 8.3	F	21.9	30.71	Dec. 16.5	F	5.0	37.00
8.4	F	23.9	29.20	17.3	F	1.0	37.54
8.5	F	1.7	28.42	17.3	F	2.5	37.45
<i>Circle E.</i>			125° 36'	17.4	F	3.8	37.50
10.2	F	20.6	41.27	17.5	F	5.6	37.36
10.3	F	21.9	41.87	18.3	F	0.9	36.77
10.4	F	23.9	41.19	18.4	F	2.5	36.36
10.5	F	2.4	41.62	18.5	F	5.5	35.66
13.3	F	21.9	44.75	23.3	F	0.8	34.82
13.4	F	23.9	43.89	23.4	F	2.6	34.36
17.2	F	20.8	46.38	23.4	F	3.8	34.12
18.2	F	20.8	44.46	23.5	F	5.6	34.53
18.3	F	21.9	44.10	<i>Circle W.</i>			125° 29'
24.3	F	21.9	41.59	27.3	F	1.0	31.13
28.3	F	21.9	41.23	27.3	F	2.0	30.76
29.3	F	21.8	41.74	27.5	F	5.5	30.47
29.4	F	0.0	39.70	29.3	F	1.1	30.75
30.3	F	21.9	39.52	1892.			
30.4	F	23.9	39.73	Jan. 6.3	F	2.0	30.27
Dec. 10.3	F	1.0	34.26	6.4	F	3.9	30.83
10.3	F	2.6	34.50	9.3	F	1.0	32.52
10.4	F	3.8	34.53	9.3	F	2.0	32.81
10.5	F	5.6	34.66	9.4	F	4.8	32.66
11.3	F	0.8	35.16	9.4	F	5.9	32.93
11.3	F	2.4	35.10	14.2	F	1.1	32.89
11.4	F	3.8	34.72	14.3	F	1.9	32.73
11.5	F	5.6	34.87	14.3	F	3.2	33.42
12.3	F	0.9	35.91	14.4	F	4.8	32.65
12.3	F	2.2	35.99	14.4	F	5.6	32.44
16.3	F	0.9	37.24	21.2	F	1.1	34.06
16.3	F	2.5	36.69	21.3	F	2.6	33.94
16.4	F	3.8	36.58	21.3	F	3.2	33.64

TABLE III.

1892.	Obs'r.	<i>Sid.</i> <i>or</i>	<i>Nadir Point.</i>	1892.	Obs'r.	<i>Sid.</i> <i>Hour.</i>	<i>Nadir Point.</i>
<i>Circle W.</i>			125° 29'	<i>Circle W.</i>			125° 29'
Jan. 21.4	F	5.8	33.68	Feb. 9.5	F	7.9	30.20
22.2	F	1.0	34.66	14.3	F	4.7	30.50
Feb. 5.3	F	4.7	31.63	14.4	F	7.2	30.74
5.4	F	6.6	31.75	16.3	F	5.6	30.20
5.5	F	8.1	31.75	16.4	F	8.1	30.75
5.5	F	9.9	31.70	16.5	F	10.0	30.89
9.4	F	5.7	30.34				

INDIVIDUAL RESULTS OF OBSERVATIONS.

[Corrections to the Berliner Jahrbuch for the epoch 1890.0. For stars observed
sub polo $\Delta\delta$ is the correction to the supplement of the tabular declination.]

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
1. α ANDROMEDAE.				1888 Sept. 11			
$\alpha = 0 \ 2 \ 42.098 \ \delta = 28 \ 28 \ 59.25$				19			
Circle West.				91 Oct. 23			
1887 Nov. 1	B	.....	-1.0	Mean.....	.....	-0.010	+0.50
88 Aug. 21	E	-0.03	+0.1	Corr.....	.....	.....	-0.04
23	E	+ .03	-0.3	Circle East.			
24	B	+ .01	-1.2	1889 Aug. 27	B	-0.06	+1.9
Sept. 1	B	- .05	-1.0	29	E	+ .07	+2.7
4	E	- .07	-0.2	Sept. 21	B	- .04	+2.0
5	E	- .03	-0.6	27	B	- .02	+1.0
6	B	- .04	-1.1	91 Oct. 10	F	+ .03	.....
Mean.....	.....	-0.026	-0.66	12	F	- .10	+2.2
Corr.....	.....	.....	+0.32	19	F	- .01	+0.8
Circle East.				21	F	- .14	+2.4
1889 Aug. 2	B	-0.03	-0.3	Mean.....	.....	-0.034	+1.86
4	E	+ .05	+0.2	Corr.....	.....	.....	-0.86
5	B	- .01	-0.2	337. 22 ANDROMEDAE.			
15	E	- .02	+0.1	$\alpha = 0 \ 4 \ 36.271. \ \delta = 45 \ 27 \ 35.66.$			
21	B	- .02	-0.5	Circle West.			
22	E	+ .01	+0.6	1888 Aug. 28	E	-0.04	+1.0
24	B	- .05	+1.0	29	B	+ .11	+0.3
Sept. 20	B	+ .01	+0.2	Sept. 1	B	.00	+1.3
91 Oct. 9	F	+ .02	+0.9	4	E	- .04	+0.9
Mean.....	.....	-0.004	+0.22	5	E	- .05	+1.5
Corr. ....	.....	.....	-0.62	6	B	- .08	+1.0
2. β CASSIOPEAE.				Mean.....	.....	-0.017	+1.00
$\alpha = 0 \ 3 \ 18.555 \ \delta = 58 \ 32 \ 34.67$				Corr.....	.....	.....	+0.39
Circle West.				Circle East.			
1887 Nov. 3	B	.....	+0.2	1889 Aug. 2	B	-0.03	+1.2
88 Aug. 22	B	+0.03	+1.0	4	E	- .02	+1.0
Sept. 8	E	- .04	+0.9	5	B	- .04	+1.8
				15	E	- .14	+1.5

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
1889 Aug. 21	B	— .06	+1.2	<i>Circle East.</i>			
22	E	— .07	+1.7	1889 Aug. 4	E	+0.78	+0.8
Mean.....		—0.060	+1.40	5	B	+ .49	+2.2
Corr.....			—0.75	15	E	+ .41	+1.9
3. γ PEGASI.				21	B	+ .58	+1.4
$\alpha = 0 \ 7 \ 34.277. \ \delta = 14 \ 34 \ 19.02.$				22	E	+ .57	+2.4
<i>Circle West.</i>				24	B	+ .46	+2.3
1887 Nov. 2	B	.....	—1.5	Mean.....		+0.548	+1.83
88 Aug. 21	E	—0.03	+0.6	Corr.....			—1.10
29	B	+ .08	—1.1	338 BR. 6, S. P.			
Sept. 8	E	+ .01	+0.3	<i>Circle West.</i>			
Mean.....		+0.020	—0.42	1889 Mar. 19	B	+0.47	—0.8
Corr.....			+0.60	22	E	+ .58	+0.1
<i>Circle East.</i>				29	E	+ .64	—0.9
1889 Aug. 2	B	+0.08	—0.2	Apr. 5	E	+ .40	—2.5
Sept. 27	B	+ .04	.....	13	B	+ .57	—1.0
91 Oct. 12	F	— .02	+0.7	19	B	+ .56	—0.5
19	F	— .02	.....	Mean.....		+0.537	—0.93
21	F	— .03	+0.8	Corr.....			— .02
Mean.....		+0.010	+0.43	<i>Circle East.</i>			
Corr.....			—0.75	1889 Apr. 30	E	+0.44	—0.5
338. BR. 6.				May 3	B	+ .36	+0.9
$\alpha = 0 \ 9 \ 59.446. \ \delta = 76 \ 20 \ 21.66.$				6	E	+ .55	+1.3
<i>Circle West.</i>				90 Mar. 28	B	+ .66	+0.9
1888 Aug. 22	B	+0.25	+1.3	31	B	+ .44	+0.3
23	E	+ .47	+0.7	Apr. 4	B	+ .63	+0.4
29	B	+ .50	—0.1	Mean.....		+0.513	+0.55
Sept. 1	B	+ .52	+1.2	Corr.....			—1.16
4	E	+ .51	+1.1				
5	E	+ .39	+1.3				
Mean.....		+0.440	+0.92				
Corr.....			— .02				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
4. ι CETI.				1889 Sept. 27			
$\alpha = 0 \ 13 \ 49.373. \ \delta = -9 \ 26 \ 2''.11.$				91 Oct. 9			
Circle West.				10			
1887 Nov. 1	B	.....	-1.5	12			
2	B	.....	-0.6	15			
3	B	.....	-0.3	19			
11	B	.....	-0.1	21			
88 Aug. 21	E	+0.02	+1.3	Mean.....			
22	B	+ .04	0.0	Corr.....			
23	E	+ .06	-0.4				
29	B	.00	0.0				
Sept. 1	B	+ .01	+0.2				
4	E	+ .05	+0.4				
5	E	+ .09	+0.3				
6	B	+ .07	-0.3				
8	E	+ .06	+0.3				
11	B	+ .07	-0.7				
12	B	- .02	+0.3				
13	E	+ .02	0.0				
91 Oct. 23	F	- .02	-1.2				
Mean.....		+0.035	-0.14				
Corr.....			+0.31				
Circle East.							
1889 Aug. 2	B	+0.07	-0.5				
4	E	+ .01	+0.3				
5	B	+ .03	+0.7				
15	E	+ .07	+0.9				
21	B	+ .03	+0.6				
22	E	+ .12	+0.3				
27	B	+ .06	+0.9				
29	E	+ .09	+1.3				
Sept. 20	B	+ .16	+0.1				
21	B	+ .05	+1.2				
				339. 12 CETI.			
				$\alpha = 0 \ 24 \ 25.502. \ \delta = -4 \ 33 \ 54.91.$			
				Circle West.			
				1887 Nov. 1			
				11			
				Mean.....			
				Corr.....			
				6. ζ CASSIOPEAE.			
				$\alpha = 0 \ 30 \ 50.653. \ \delta = 53 \ 17 \ 29.01.$			
				Circle West.			
				1888 Aug. 22			
				23			
				Sept. 1			
				6			
				13			
				Mean.....			
				Corr.....			
				Circle East.			
				1889 Aug. 2			
				4			
				5			

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
1889 Aug. 15	E	— .14	+1.5	<i>Circle East.</i>			
21	B	— .02	+0.9	1889 Sept. 27	B	+0.02	0.0
22	E	— .16	+1.3	Oct. 4	B	— .04	+1.1
27	B	— .07	+1.2	7	B	— .02	+0.7
29	E	+ .06	+1.1	13	B	+ .02	—0.1
Mean.....		—0.065	+1.04	Mean.....		—0.005	+0.42
Corr.			—0.81	Corr.			—0.64

7. π ANDROMEDAE. $\alpha = 0 \ 31 \ 0.332. \ \delta = 33 \ 6 \ 49.12.$ *Circle West.*

1888 Sept. 4	E	+0.02	—0.5
5	E	— .03	—0.8
8	E	+ .02	—0.3
11	B	+ .04	—1.2
91 Oct. 23	F	.00	—2.1
Mean.....		+0.010	—0.98
Corr.			+0.28

Circle East.

1889 Aug. 24	B	0.00	+0.9
Sept. 20	B	+ .02	+1.5
Oct. 1	B	— .04	—0.1
17	B	— .02	+0.1
Mean.....		—0.010	+0.60
Corr.			—0.81

8. ε ANDROMEDAE. $\alpha = 0 \ 32 \ 44.567. \ \delta = 28 \ 42 \ 51.63.$ *Circle West.*

1888 Aug. 29	B	—0.01	—0.1
Sept. 12	B	+ .03	0.0
Mean.....		+0.010	—0.05
Corr.			+0.33

9. δ ANDROMEDAE. $\alpha = 0 \ 33 \ 26.785. \ \delta = 30 \ 15 \ 32.45.$ *Circle West.*

1887 Nov. 3	B	.....	—1.7
15	B	.....	—1.6
88 Aug. 22	B	—0.04	—0.7
23	E	— .06	+0.9
Sept. 6	B	— .03	—0.5
8	E	— .03	—0.4
11	B	— .05	—1.1
13	E	— .05	—0.5
Mean.....		—0.043	—0.70
Corr.			+0.20

Circle East.

1889 Aug. 4	E	—0.08	—0.4
5	B	— .06	—0.1
15	E	— .09	+0.2
21	B	— .05	+0.2
22	E	— .05	+0.8
29	E	— .06	—0.2
Oct. 9	B	— .04	+0.5
Mean.....		—0.061	+0.14
Corr.			—0.58

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
10. α CASSIOPEAE.				1888 Sept. 12			
$\alpha = 0 \ 34 \ 15.951. \ \delta = 55 \ 56 \ 2.12.$				13			
<i>Circle West.</i>				Mean			
1887 Nov. 1	B	.....	-0.8	Corr			
88 Sept. 12	B	+0.01	+0.1	<i>Circle East.</i>			
91 Oct. 23	F	- .11	-0.4	1889 Aug. 24	B	+0.04	+1.7
Mean.....		-0.050	-0.37	27	B	- .08	+1.1
Corr			+0.01	29	E	+ .21	+1.3
<i>Circle East.</i>				Sept. 20	B	- .04	+1.4
1889 Aug. 24	B	-0.03	+1.8	21	B	+ .05	+1.9
27	B	- .04	+1.9	27	B	+ .03	+0.8
Sept. 20	B	- .07	+1.5	Mean.....		+0.035	+1.37
21	B	+ .01	+2.0	Corr			-1.06
Oct. 1	B	- .02	+1.1	340. 21 CASSIOPEAE, S. P.			
4	B	+ .02	+1.2	<i>Circle West.</i>			
17	B	- .02	.....	1888 May 19	B	-0.20	-0.8
Mean		-0.021	+1.58	31	B	+ .02	-0.9
Corr.			-0.75	89 Mar. 19		+ .19	-0.6
540. β CETI.				23	B	+ .10	.....
$\alpha = 0 \ 38 \ 4.074. \ \delta = -18 \ 35 \ 26.59.$				Apr. 5	E	+ .07	-0.9
<i>Circle West.</i>				13	B	+ .22	-1.8
1887 Nov. 11	B	.....	-0.6	Mean.....		+0.067	-1.00
Corr			+0.70	Corr			+ .19
340. 21 CASSIOPEAE.				<i>Circle East.</i>			
$\alpha = 0 \ 38 \ 23.521. \ \delta = 74 \ 23 \ 11.75.$				1889 Mar. 19	B	.....	-0.6
<i>Circle West.</i>				23	B	.....	-0.8
1888 Sept. 1	B	-0.01	-0.2	Apr. 30	E	+0.10	+1.3
5	E	- .04	+0.6	May 3	B	+ .05	+2.8
8	E	- .13	-0.1	6	E	+ .07	+1.9
11	B	+ .09	-1.1	90 Mar. 12	B	+ .07	+0.8
				31	B	.00	+1.0

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
1890 Apr. 4	B	+ .04	+1.3	1891 Oct. 23	F	.00	-2.2
Mean.....		+0.055	+0.96	Mean		+0.038	-1.20
Corr.			-1.33	Corr.			+0.28

341. α CASSIOPEAE.

$$\alpha = 0 \ 38 \ 35.738. \quad \delta = 47 \ 40 \ 55.74.$$

Circle West.

1888 Aug. 23	E	0.00	+1.4
Sept. 1	B	- .03	+0.5
4	E	+ .10	+0.5
6	B	+ .04	+1.0
19	B	+ .11	+0.6
23	E	+ .11	-0.2
Mean.....		+0.055	+0.63
Corr.....			+0.25

Circle East.

1889 Aug. 2	B	+0.05	+0.8
4	E	+ .02	+0.3
5	B	.00	+0.9
15	E	- .02	+0.8
21	B	+ .05	+0.8
22	E	+ .01	+0.9
Mean		+0.018	+0.75
Corr.			-0.87

11. ζ ANDROMEDAE.

$$\alpha = 0 \ 41 \ 30.452 \quad \delta = 23 \ 40 \ 7.19.$$

Circle West.

1887 Nov. 15	B	.....	-1.5
88 Sept. 11	B	+0.04	-1.8
12	B	+ .06	+0.2
13	E	+ .01	-0.6
19	B	+ .08	-1.3

Circle East.

1889 Oct. 1	B	+0.02	-0.4
4	B	.00	-0.2
7	B	.00	+0.1
9	B	+ .01	-0.2
Mean		+0.008	-0.18
Corr.			-0.40

12. η CASSIOPEAE.

$$\alpha = 0 \ 42 \ 26.618. \quad \delta = 57 \ 13 \ 56.80$$

Circle East.

1889 Oct. 13	B	+0.39	-0.3
17	B	+ .30	+0.5
Mean		+0.345	+0.10
Corr.			-0.87

342. δ PISCUM.

$$\alpha = 0 \ 42 \ 58.493. \quad \delta = 6 \ 59 \ 10.23.$$

Circle West.

1888 Aug. 29	B	-0.02	-0.1
Sept. 1	B	+ .08	-1.3
4	E	+ .04	-0.8
5	E	+ .07	0.0
6	B	+ .07	-0.3
23	E	- .02	-1.3
Mean		+0.037	-0.63
Corr.			+0.54

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				343. BR. 82, S. P.			
				<i>Circle West.</i>			
1889 Aug. 2	E	+0.04	+0.5	1888 Apr. 24	E	-0.02	-0.8
4	E	+ .10	-0.4	May 14	B	+ .10	-0.2
5	B	- .01	+0.2	15	B	+ .22	-1.7
15	E	+ .12	+0.5	16	E	+ .10	-0.2
21	B	- .01	+0.3	31	B	+ .12	-1.2
22	E	- .02	+0.9	89 Mar. 23	B	+ .14	+0.8
Mean		+0.037	+0.33	Mean		+0.110	-0.55
Corr.			-0.36	Corr.			- .18
343. BR. 82.				<i>Circle East.</i>			
$\alpha = 0 \ 44 \ 3.169. \ \delta = 63 \ 38 \ 54.25.$							
<i>Circle West.</i>							
1888 Aug. 22	B	+0.10	+1.3	1889 Apr. 30	E	+0.20	+0.4
23	E	+ .19	+1.0	May 3	B	+ .15	+2.3
Sept. 1	B	+ .04	+0.5	6	E	+ .06	+1.3
4	E	+ .03	+1.2	27	B	+ .22	-0.1
8	E	+ .10	0.0	90 Mar. 12	B	+ .21	+0.3
11	B	+ .09	0.0	28	B	+ .20	+1.7
Mean		+0.092	+0.67	Mean		+0.173	+0.98
Corr.			- .18	Corr.			- .85
<i>Circle East.</i>				13. γ CASSIOPEAE.			
				$\alpha = 0 \ 50 \ 4.271. \ \delta = 60 \ 7 \ 14.93.$			
				<i>Circle West.</i>			
1889 Aug. 24	B	+0.09	+2.0	1887 Nov. 11	B	.....	-0.1
27	B	+ .12	+1.7	15	B	.....	0.0
29	E	+ .25	+1.1	17	B	.....	+0.1
Sept. 20	B	+ .07	+1.3	88 Sept. 6	B	-0.04	+0.9
21	B	+ .10	+2.2	12	B	- .09	+1.7
27	B	+ .20	+1.2	91 Oct. 23	F	+ .02	-0.2
Mean		+0.138	+1.58	Mean		-0.037	+0.40
Corr.			- .90	Corr.			-0.14

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>							
1889 Aug. 2	B	+0.04	+1.4	344. 43 H. CEPHEI.			
4	E	— .03	+0.4	$\alpha = 0 \ 53 \ 48.241. \ \delta = 85 \ 40 \ 0.02.$			
5	B	— .07	+1.7	<i>Circle West.</i>			
15	E	— .13	+1.4				
21	B	— .03	+1.1				
22	E	+ .02	+2.1				
Oct. 9	B	— .01	+1.3				
14	B	— .02	.....				
Mean.....		—0.029	+1.34				
Corr.			—0.92				

14. μ ANDROMEDAE.

$$\alpha = 0 \ 50 \ 38.958. \ \delta = 37 \ 54 \ 9.46.$$

Circle West.

1888 Aug. 22	B	—0.06	—0.5
23	E	— .07	—0.6
Sept. 13	E	— .11	—0.3
19	B	— .14	—1.3
23	E	— .02	—0.8
Mean.....		—0.080	—0.70
Corr.			+0.42

Circle East.

1889 Oct. 4	B	—0.09	+0.3
7	B	— .10	+0.8
13	B	— .08	—0.6
17	B	— .13	—0.1
Mean.....		—0.100	+0.10
Corr.			—0.72

1887 Nov. 11	B	.....	—0.7
15	B	.....	—0.6
88 Aug. 22	B	—0.06	+0.6
23	E	+ .32	+0.4
Sept. 1	B	— .11	+0.7
4	E	.00	—0.3
5	E	+ .10	+0.5
6	B	— .04	+0.9
8	E	— .09	+0.4
11	B	— .30	+0.5
Mean.....		—0.022	+0.24
Corr.			— .38

Circle East.

1889 Aug. 2	B	+0.16	+1.1
4	E	+ .50	—0.1
5	B	.00	+0.8
15	E	+ .22	+0.5
21	B	— .30	+0.6
22	E	+ .03	+1.0
Oct. 18	B	+ .01	+1.2
Mean.....		+0.089	+0.73
Corr.			— .81

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
344. 43 H. CEPHEI, S. P.				1891 Oct. 23	F	-0.01	-2.2
<i>Circle West.</i>				Mean		+0.017	-1.07
				Corr.			+0.58
				<i>Circle East.</i>			
1888 May 15	B	+0.27	+0.1	1889 Aug. 2	E	+0.05	+0.2
16	B	- .49	-0.2	4	E	+ .13	-0.8
25	B	- .20	+0.9	5	B	.00	-0.1
31	B	- .14	+0.1	15	E	+ .09	-0.2
89 Mar. 23	B	- .09	+0.7	21	B	- .02	-0.7
Apr. 15	E	- .59	-0.1	22	E	+ .06	-0.4
19	B	+ .27	+1.0	24	B	.00	+0.1
21	E	+ .46	+0.9	27	B	+ .06	-0.4
25	B	+ .20	+0.8	29	E	- .01	-1.0
Mean.....		-0.034	+0.47	Sept. 20	B	.00	-0.3
Corr.			- .39	21	B	+ .01	.....
<i>Circle East.</i>				27	B	- .01	-0.4
1889 Aug. 30	E	+0.20	+0.9	Oct. 1	B	+ .02	.....
May 3	B	+ .03	+2.1	4	B	+ .01	+0.3
27	B	- .05	+1.2	7	B	+ .03	.....
90 Mar. 12	B	+ .12	+0.7	9	B	.00	.....
17	B	+ .32	+1.1	14	B	.00	.....
28	B	+ .25	+2.2	17	B	+ .02	.....
31	B	- .12	+1.4	Mean		+0.024	-0.31
Apr. 19	B	- .12	.....	Corr.			-0.36
Mean.....		+0.079	+1.37				
Corr.			- .81				

15. ϵ PISCUM.

$$\alpha = 0 \ 57 \ 14.030. \quad \delta = 7 \ 17 \ 52.17.$$

Circle West.

1888 Aug. 29	B	+0.03	-0.1
Sept. 12	B	.00	-0.9
13	E	+ .02	-0.8
19	B	+ .07	-1.5
23	E	- .01	-0.9

345. 44 H. CEPHEI.

$$\alpha = 1 \ 2 \ 47.264. \quad \delta = 79 \ 5 \ 16.66.$$

Circle West.

1888 Aug. 22	B	+0.49	+1.3
23	E	+ .47	+1.0
Sept. 1	B	+ .34	+0.3
4	E	+ .59	+1.1
5	E	+ .18	+0.7

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$	$\Delta Dec.$
Sept. 6	B	+0.41	+1.0	16. β ANDROMEDAE.			
Mean .....	.....	+0.413	+0.90				
Corr .....	.....	.....	-.20				
Circle East.				$\alpha = 1 \ 3 \ 34.423.$ $\delta = 35 \ 2 \ 14.32.$			
1889 Aug. 5	B	+0.03	+2.0	1887 Nov. 10	B	.....	-1.8
15	E	-.09	+1.4	11	B	.....	-3.0
21	B	-.03	+1.2	17	B	.....	-2.0
22	E	-.03	+2.3	88 Sept. 8	E	-0.08	-1.7
24	B	+.01	+2.6	11	B	-.10	-2.2
29	E	+.11	+1.8	19	B	.00	-1.7
Mean .....	.....	0.000	+1.88	23	E	+.03	-0.9
Corr .....	.....	.....	-1.10	91 Oct. 23	F	-.03	-2.4
345. 44 H. CEPHEI, S. P.				Mean .....	.....	-0.036	-1.96
Circle W.				Corr .....	.....	.....	+0.53
1888 Apr. 24	E	-0.17	-1.5	Circle E.			
May 14	B	-.06	-0.6	1889 Aug. 2	E	-0.09	-0.3
16	E	-.27	-0.6	4	E	-.04	0.0
23	B	-.30	-0.4	27	B	-.02	+0.2
25	B	+.06	-0.7	Sept. 20	B	-.08	-0.1
89 Apr. 5	E	-.07	-1.3	21	B	-.10	+1.1
Mean .....	.....	-0.135	-0.85	27	B	-.08	+0.2
Corr .....	.....	.....	-.04	Oct. 1	B	-.09	.....
Circle E.				9	B	-.06	-0.4
1889 Apr. 30	E	-0.14	-0.7	13	B	-.07	.....
May 3	B	+.16	+1.9	14	B	-.04	.....
6	E	+.07	+1.0	17	B	-.07	+0.5
27	B	-.05	+0.5	18	B	-.04	+0.4
90 Mar. 12	B	+.02	+0.3	Mean .....	.....	-0.065	+0.18
28	B	+.09	+1.1	Corr .....	.....	.....	-0.68
Mean .....	.....	+0.025	+0.68				
Corr .....	.....	.....	-1.10				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
17. τ PISCUM.				91 Dec. 27	F	+ .01	-2.0
$\alpha = 1 \ 5 \ 36.144 \ \delta = 29 \ 30 \ 20.07$				92 Jan. 9	F	- .05	.....
Circle W.				Mean.....		+0.034	-0.85
1888 Sept. 1	B	-0.04	-1.3	Corr.....			+0.32
8	E	+ .01	-1.2	Circle E.			
13	E	- .04	-0.8	1888 Dec. 29	B	-0.01	-0.9
19	B	+ .06	-1.8	89 Jan. 2	E	- .04	-0.6
23	E	- .02	-1.5	Aug. 2	B	+ .10	-0.2
Mean.....		-0.006	-1.32	4	E	.00	0 3
Corr.....			+0.27	15	E	- .05	+0.3
Circle E.				21	B	- .03	+0.2
1889 Aug. 5	B	-0.01	0.0	22	E	- .03	+0.4
22	E	.00	+0.2	24	B	+ .04	+1.6
Oct. 4	B	- .06	-0.6	27	B	+ .02	+0.3
7	B	- .02	0.0	29	E	- .07	0.0
29	B	- .08	-0.8	91 Oct. 20	F	-0.03	+0.1
Mean.....		-0.034	-0.24	Dec. 10	F	.....	0.0
Corr.....			-0.62	11	F	.00	+0.3
18. ν PISCUM.				12	F	.....	+0.3
$\alpha = 1 \ 13 \ 25.209. \ \delta = 26 \ 41 \ 8.37.$				16	F	- .02	+0.1
Circle West.				17	F	- .04	+1.0
1887 Nov. 10	B	.....	-0.6	18	F	- .03	+0.7
11	B	.....	-1.8	23	F	+ .05	.....
15	B	.....	0.0	Mean.....		-0.009	+0.19
17	B	.....	-1.1	Corr.....			-0.43
28	B	-0.02	-1.2	346. ψ CASSIOPEAE.			
88 Aug. 23	E	+ .06	-0.9	$\alpha = 1 \ 18 \ 10.015. \ \delta = 67 \ 33 \ 19.52.$			
Sept. 1	B	+ .04	-1.0	Circle West.			
4	E	+ .12	0.0	1888 Aug. 22	B	-0.01	+1.4
5	E	+ .01	-0.2	23	E	+ .04	+0.9
6	B	+ .05	-0.9	Sept. 1	B	- .06	-0.3
11	B	+ .05	-1.0	4	E	- .03	+0.7
23	E	+ .07	-0.4				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
Sept. 5	E	-0.11	+0.7	19. α URSAE MINORIS.			
6	B	-.10	+0.6	$\alpha = 1 \ 18 \ 30.905. \ \delta = 88 \ 43 \ 18.37.$			
Mean		-0.045	+0.67	<i>Circle West.</i>			
Corr			-.15				
<i>Circle East.</i>				1887 Nov. 10	B	.....	-0.1
1888 Dec. 29	B	0.00	+1.4	11	B	.....	-0.7
89 Jan. 2	E	-.12	+1.3	15	B	.....	-0.5
Aug. 5	B	-.03	+2.9	17	B	.....	-0.2
15	E	-.04	+2.2	28	B	-0.06	-0.5
21	B	.00	+2.2	29	B	.....	-0.4
22	E	-.01	+1.8	Dec. 11	B	.....	-0.5
Mean		-0.033	+1.97	16	B	.....	+0.9
Corr			-1.22	28	B	.....	-0.7
				29	B	+ .25	-0.4
346. ψ CASSIOPEAE, S. P.				88 Feb. 7	B	.....	-0.4
<i>Circle West.</i>				8	B	.....	[-3.4]
1888 May 16	E	-0.15	-0.8	Aug. 22	B	+0.07	+0.3
31	B	-.10	-1.5	22	B	-0.06	+1.0
June 2	E	+ .12	-0.7	23	E	+0.09	+0.1
4	B	-.01	0.0	23	E	-0.15	+0.4
89 Apr. 13	B	+ .07	-0.6	29	B	-0.85	-0.5
15	E	.00	-0.5	29	B	-0.46	+0.1
Mean		-0.012	-0.68	Sept. 1	B	-0.30	0.0
Corr			-.18	1	B	-1.04	+0.3
<i>Circle East.</i>				4	E	-0.08	-0.8
1889 May 6	E	+0.01	+0.3	4	E	-1.43	-0.6
25	E	+ .05	-1.5	5	E	+0.78	-0.3
27	B	+ .02	+0.4	5	E	-1.93	+0.2
June 12	E	+ .01	+0.7	6	B	+0.34	+0.3
16	B	+ .01	-0.8	6	B	-0.50	+0.5
90 Apr. 4	B	+ .03	+0.5	8	E	-0.03	+1.1
Mean		+0.022	-0.07	11	B	+0.46	-0.5
Corr			-.81	12	B	-0.98	+0.6
				12	B	+1.04	+1.4

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Sept. 13	E	+0.04	+0.3	21	B	-0.04	+1.0
19	B	-0.75	-0.3	22	E	+0.52	+0.7
23	E	+0.06	+0.1	24	B	+0.30	+1.6
Oct. 7	B	+2.15	0.0	27	B	-0.15	+1.1
7	B	-0.08	.....	29	E	+0.02	+0.5
8	E	-0.49	+0.8	Sept. 20	B	-0.71	+0.2
8	E	.....	+0.6	21	B	+0.48	.....
9	B	+0.08	+0.5	27	B	+1.36	+1.3
13	B	-0.07	0.0	Oct. 1	B	-0.11	-0.1
13	B	.....	+0.4	4 ²	B	-0.44	[+1.4]
15	E	+0.04	-0.2	7	B	+0.26	.....
15	E	.....	+0.7	9	B	.....	+0.6
16	B	-0.22	+0.6	13	B	+0.40	+0.4
91 Oct. 23	F	+0.72	.....	14	B	-0.29	+0.9
Dec. 27	F	+0.19	+0.7	17	B	-0.52	+0.9
92 Jan. 6	F	-0.14	-0.6	18	B	-0.90	+1.6
9	F	+0.55	0.0	20	B	+2.00	+1.2
14	F	+0.04	-0.4	29	B	-0.31	+1.0
21	F	+0.80	+0.1	91 Oct. 20	F	+0.01	.....
Mean		+0.054	+0.02	Dec. 10	F	-1.36	.....
Corr			-0.28	11	F	-0.20	+1.2
<i>Circle E.</i>				12	F	.....	+1.4
1888 Dec. 27	B	-0.03	+0.2	16 ³	F	-0.76	[0.0]
29 ¹	B	-0.13	[-1.9]	17	F	+0.26	+1.0
29	B	+0.51	-0.1	18	F	-0.77	+1.7
89 Jan. 2	E	+0.47	+0.4	23	F	+1.42	+1.3
2	E	-0.37	-0.1	Mean		+0.028	+0.79
3	B	.....	+0.8	Corr			-0.81
3	B	.....	+1.0	¹ Telescope micrometer diminished 0.2 rev. ² Telescope micrometer increased 0.1 rev. ³ Microscopes indicate some disturbance			
10	B	+0.01	.....	19. α URSAE MINORIS, S. P.			
Aug. 2	B	0.00	+0.3	<i>Circle W.</i>			
4	E	+0.05	-0.1	1889 Apr. 24	E	+1.32	-1.0
5	B	+0.15	+0.7	May 14	B	+0.18	+0.2
15	E	0.00	+0.6	15	B	-0.25	+0.6

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
1889 May 19	B	-1.58	-0.4	1889 May 6	E	.....	+1.1
21	E	0.00	-0.3	23	B	+0.27	+1.0
23	B	+0.05	-0.1	23	B	.....	+0.5
25	B	-0.32	-0.4	24	E	.....	+1.1
29	B	-0.19	-0.2	25	E	0.00	-0.1
30	E	+0.08	-2.0	27	B	+0.66	+0.9
31	B	+0.17	-0.7	June 5	E	-0.01	+1.0
31	B	+0.48	-0.5	5	E	.....	+1.0
June 2	E	+0.22	+0.2	11	B	-0.38	.....
4	B	-0.22	+0.7	12	E	-0.81	-0.1
4	B	+0.61	.....	12	E	-0.37	+1.5
8	E	+0.03	+0.4	16	B	-0.13	.....
15	B	-0.04	.....	90 Mar. 12	B	+1.07	+0.1
16	E	-0.71	.....	17	B	-0.03	+0.6
89 Mar. 19	B	-0.02	+1.0	28	B	-0.13	+0.9
21	B	-0.05	.....	31	B	+0.01	+0.7
22	E	+0.07	-0.8	Apr. 4	B	-0.02	+1.3
23	B	-0.36	0.0	10	B	-0.04	.....
29	E	-0.04	0.0	16	B	+0.09	.....
Apr. 5	E	+0.83	-0.5	17	B	+1.18	+0.5
13	B	+0.22	+0.4	Mean.....	.....	-0.154	+0.69
13	B	+1.43	-0.3	Corr.....	.....	.....	-0.73
15	E	-0.14	0.0	21. ♀ CETI. $\alpha=1$ 18 31.508. $\delta=-8$ 45 4.31. Circle West.			
15	E	-0.02	+0.1				
19	B	-0.47	+0.9				
21	E	+0.32	+0.5	1888 Aug. 29	B	-0.06	-0.3
25	B	+0.73	+0.9	Sept. 12	B	+ .04	+0.1
Mean.....	.....	+0.041	-0.03	Oct. 13	B	+ .04	-0.4
Corr.....	.....	.....	-0.30	15	E	+ .01	-0.8
Circle E.				91 Oct. 23	F	+ .03	.....
1889 Apr. 30	E	-2.93	-0.2	Dec. 27	F	+ .02	-2.2
May 3	B	-1.53	+1.1	Mean.....		+0.013	-0.72
6	E	-0.26	+1.0	Corr.....			+0.30

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
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<i>Circle East.</i>				22. η PISCUM.			
				$\alpha = 1\ 25\ 35.798.$ $\delta = 14\ 46\ 42.42.$			
				<i>Circle West.</i>			
1889 Jan. 3	B		-0.9	1888 Sept. 8	E	+0.03	-0.5
Sept. 21	B	+0.04	+0.3	Oct. 15	E	.00	-1.0
Oct. 1	B	+ .02	-0.5	16	B	+ .02	-0.2
4	B	+ .01	+0.6	91 Oct. 23	F	+ .02	.....
9	B	+ .04	-0.6	92 Jan. 9	F	- .05	+0.1
13	B	- .01	-0.2	14	F	- .01	-1.2
14	B	+ .05	+0.8	21	F	- .01	-1.1
91 Oct. 20	F	+ .01	-0.2	Mean		0.000	-0.65
Mean		+0.023	-0.09	Corr.....			+0.62
Corr			-0.22	<i>Circle East.</i>			

20. δ CASSIOPEAE.							
				$\alpha = 1\ 18\ 37.365.$ $\delta = 59\ 39\ 48.63.$			
<i>Circle West.</i>							
1889 Sept. 19	B	-0.05	-0.9	1888 Dec. 29	B	+0.03	-1.0
Oct. 7	B	- .08	-0.6	89 Jan. 2	E	+ .03	-0.1
8	E	- .03	-0.6	3	B	.....	-0.2
Mean		-0.053	-0.70	Sept. 21	B	- .01	+1.6
Corr.....			-0.12	Oct. 13	B	+ .01	-0.2
<i>Circle East.</i>				17	B	+ .06	+0.5
1889 Sept. 20	B	-0.11	-0.3	18	B	+ .03	+1.0
27	B	- .03	-0.4	20	B	- .04	+0.1
Oct. 7	B	- .04	+0.8	29	B	- .01	+0.4
17	B	- .05	+0.5	91 Dec. 11	F	- .01	+0.1
18	B	- .03	+1.0	12	F	.....	+1.1
20	B	.00	+0.6	16	F	+ .08	.....
Mean		-0.043	+0.37	17	F	- .03	+1.0
Corr.....			-0.90	18	F	+ .04	+1.0
				23	F	.....	+1.1
				Mean.....		+0.015	+0.46
				Corr.....			-0.77

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
347. 40 CASSIOPEAE.				Circle East.			
$\alpha = 1 \ 29 \ 43.962. \ \delta = 72 \ 28 \ 44.32.$							
Circle West.							
1887 Nov. 10	B	.....	-0.5	1889 May 3	B	+0.08	+2.7
88 Sept. 8	E	-0.05	+0.1	23	B	+ .21	+1.7
11	B	+ .15	-0.2	25	E	+ .10	-0.4
12	B	+ .17	+1.1	27	B	+ .07	+1.4
13	E	+ .11	+0.7	June 5	E	+ .05	+1.8
19	B	- .02	-0.5	12	E	+ .04	+2.2
23	E	+ .06	+0.8	Mean.....	.....	+0.092	+1.57
Mean.....	.....	+0.070	+0.21	Corr. ....	.....	.....	- .98
Corr. ....	.....	.....	+ .13				
Circle East.				23. ν PERSEI.			
				$\alpha = 1 \ 31 \ 14.472. \ \delta = 48 \ 4 \ 14.32.$			
				Circle West.			
1889 Sept. 21	B	+0.08	+1.8	1887 Nov. 15	B	.....	-0.9
27	B	+ .14	+1.3	17	B	.....	-0.6
Oct. 4	B	+ .05	+1.4	29	B	.....	-0.7
7	B	+ .18	+2.2	Dec. 29	B	+0.08	-1.6
9	B	+ .14	+0.4	88 Oct. 15	E	+ .02	+0.1
13	B	+ .13	+0.5	16	B	- .02	-0.2
Mean.....	.....	+0.120	+1.27	92 Jan. 6	F	- .09	.....
Corr. ....	.....	.....	-1.10	14	F	+ .06	-0.9
				21	F	- .05	-1.0
347. 40 CASSIOPEAE, S. P.				Mean.....	.....	0.000	-0.72
Circle West.				Corr. ....	.....	.....	+0.18
				Circle East.			
1888 May 14	B	-0.01	-0.2	1888 Dec. 27	B	.....	-0.7
25	B	- .05	0.0	89 Sept. 20	B	+0.01	+0.2
89 Apr. 5	E	- .01	-0.7	Oct. 1	B	+ .02	-0.1
15	E	- .05	-0.6	29	B	.00	+0.9
19	B	+ .06	+0.2	91 Dec. 10	F	- .04	.....
21	E	+ .09	-0.5	11	F	- .03	+1.0
Mean.....	.....	+0.005	-0.30	12	F	.....	+1.5
Corr. ....	.....	.....	+ .30				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Dec. 16	F	— .06	+0.6	May 29	B	— .04	[—2.8]
18	F	— .08	+1.9	89 Apr. 15	E	+ .01	—0.5
23	F	+ .06	+1.7	19	B	— .07	+0.2
Mean.....		—0.015	+0.78	Mean.....		+0.017	—0.16
Corr.....			—0.95	Corr.....			— .19

348. 43 CASSIOPEAE.

 $\alpha = 1 \ 34 \ 11.903. \ \delta = 67 \ 29 \ 10.44.$ *Circle West.*

1888 Sept. 1	B	+0.04	+0.3
8	E	— .04	+0.4
11	B	+ .16	—0.1
13	E	+ .10	+0.8
19	B	+ .10	+0.5
23	E	+ .22	+0.3
Mean.....		+0.097	+0.37
Corr.....			— .15

Circle East.

1888 Dec. 27	B	.....	—0.1
89 Oct. 4	B	+0.03	+1.9
14	B	+ .02	+1.8
17	B	+ .11	+1.5
18	B	+ .01	+1.9
20	B	+ .13	+1.3
Dec. 29	B	+ .01	+1.1
Mean.....		+0.052	+1.34
Corr.....			—1.21

348. 43 CASSIOPEAE, S. P.

Circle West.

1888 May 15	B	+0.07	+0.2
21	E	+ .15	—0.2
23	B	— .02	—0.5

Circle East.

1889 May 3	B	+0.09	+1.4
23	B	+ .11	—0.1
25	E	+ .08	—1.2
27	B	— .06	+1.0
June 5	E	+ .09	+1.0
12	E	+ .01	+1.3
Mean.....		+0.053	+0.57
Corr.....			— .81

349. ν PISCUM. $\alpha = 1 \ 35 \ 42.374. \ \delta = 4 \ 55 \ 50.58.$ *Circle West.*

1888 Sept. 8	E	+0.12	—0.4
11	B	+ .05	—1.1
12	B	+ .03	+0.2
13	E	+ .05	—0.8
19	B	+ .09	—1.0
23	E	.00	—0.6
Mean.....		+0.057	—0.62
Corr.....			+0.19

Circle East.

1888 Dec. 29	B	+0.12	—1.1
89 Oct. 4	B	+ .04	+0.2
14	B	+ .03	+0.6
18	B	+ .09	+0.2
20	B	.00	—0.7

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
Oct. 29	B	— .03	—0.3	Jan. 9	F	— .04	+0.4
Mean.....		+0.042	—0.18	14	F	— .01	—0.1
Corr.....			— .33	21	F	— .02	—0.9
24. ϕ PERSEI.				Mean.....		—0.022	—0.42
$\alpha = 1 \ 36 \ 46.005. \ \delta = 50 \ 8 \ 3.05.$				Corr.....			+0.57
Circle West.				Circle East.			
1887 Nov. 10	B	.....	—0.1	1891 Dec. 10	F	+0.06	+1.4
11	B	.....	—0.8	11	F	+ .11	+0.5
88 Sept. 1	B	+0.05	+0.1	12	F	.....	+0.8
4	E	+ .03	+0.1	16	F	+ .09	+0.8
6	B	+ .02	+0.4	17	F	+ .04	+1.2
92 Jan. 6	F	+ .07	—0.4	18	F	+ .09	+0.1
9	F	+ .11	+0.2	23	F	+ .07	+1.1
Mean.....		+0.056	—0.07	Mean.....		+0.077	+0.84
Corr.....			+0.04	Corr.....			—0.52
Circle East.				25. σ PISCUM.			
				$\alpha = 1 \ 39 \ 35.054. \ \delta = 8 \ 36 \ 13.80.$			
				Circle West.			
1889 Jan. 2	E	—0.04	+1.1	1887 Nov. 28	B	—0.03	+0.1
10	B	+ .02	.....	29	B	.....	+0.2
91 Oct. 20	F	— .03	+1.8	Dec. 29	B	+ .07	—1.9
Dec. 10	F	— .04	+2.4	88 Sept. 4	E	— .04	+0.2
12	F	.....	+2.0	8	E	+ .05	—0.6
16	F	— .05	+2.1	11	B	+ .04	—1.1
17	F	+ .03	+3.0	12	B	+ .05	—0.5
18	F	— .07	+2.1	19	B	+ .09	—1.3
23	F	+ .01	+2.6	23	E	+ .03	—1.1
Mean.....		—0.021	+2.14	Oct. 7	B	+ .08	—1.3
Corr.....			—1.15	8	E	+ .03	+0.5
542. τ CETI.				9	B	+ .09	—1.8
$\alpha = 1 \ 38 \ 57.433. \ \delta = -16 \ 31 \ 1.87.$				13	B	+ .02	—0.7
Circle West.				16	B	+ .05	—0.8
1887 Nov. 17	B	.....	+0.3	91 Oct. 23	F	+ .01	.....
91 Dec. 27	F	+0.06	—2.0	Mean.....		+0.039	—0.72
92 Jan. 6	F	— .10	—0.2	Corr.....			+0.64

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				26. ϵ CASSIOPEAE, S. P.			
1888 Dec. 27	B	.....	-1.4	<i>Circle West.</i>			
29	B	+0.07	-0.4	1888 May 25	B	-0.02	0.0
89 Jan. 2	E	+ .05	+0.3	Corr. ....	.....	.....	-.22
10	B	+ .04	.....	27. α TRIANGULI.			
Oct. 7	B	+ .06	+0.3	$\alpha = 1 \ 46 \ 48.680. \ \delta = 29 \ 2 \ 33.55.$			
9	B	+ .02	-0.5	<i>Circle West.</i>			
13	B	.00	-0.4	1887 Nov. 28	B	-0.13	-1.0
14	B	- .03	+0.6	Dec. 29	B	.00	-2.4
17	B	+ .03	+0.6	88 Sept. 8	E	- .04	-1.0
18	B	+ .07	+0.1	12	B	- .06	+0.5
20	B	.00	-0.1	Oct. 15	E	- .05	+0.6
91 Oct. 19	F	- .01	.....	16	B	.00	-0.5
Mean.....	.....	+0.027	-0.09	91 Dec. 27	F	- .06	-1.5
Corr. ....	.....	.....	-0.42	Mean.....	.....	-0.049	-0.76
26. ϵ CASSIOPEAE.				Corr. ....	.....	.....	+0.33
$\alpha = 1 \ 46 \ 29.085. \ \delta = 63 \ 7 \ 40.63.$				<i>Circle East.</i>			
<i>Circle West.</i>				1889 Jan. 10	B	-0.05	.....
1888 Oct. 7	B	-0.05	-0.3	Oct. 1	B	- .01	0.0
9	B	- .05	-0.4	4	B	- .01	+0.1
13	B	- .04	+1.4	9	B	- .03	.....
92 Jan. 21	F	- .08	+0.2	14	B	+ .08	.....
Mean.....	.....	-0.055	+0.22	17	B	.00	.....
Corr. ....	.....	.....	-.20	Mean.....	.....	-0.003	+0.05
<i>Circle East.</i>				Corr. ....	.....	.....	-0.66
1888 Dec. 29	B	-0.04	+0.7	29. ξ PISCUM.			
89 Jan. 2	E	+ .06	+0.6	$\alpha = 1 \ 47 \ 51.637. \ \delta = 2 \ 38 \ 39.09.$			
Oct. 7	B	- .03	+2.3	<i>Circle West.</i>			
13	B	+ .01	+0.3	1887 Nov. 17	B	.....	+0.1
20	B	+ .05	+0.7	Corr. ....	.....	.....	+0.15
Mean.....	.....	+0.010	+0.92				
Corr. ....	.....	.....	-.84				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				31. 50 CASSIOPEAE.			
				$\alpha = 1 \ 54 \ 2.967. \ \delta = 71 \ 53 \ 18.56.$			
				<i>Circle West.</i>			
1889 Oct. 18	B	0.00	+0.5	1888 Sept. 8	E	+0.06	-0.1
29	B	+ .01	+0.1	12	B	+ .04	+1.2
91 Dec. 10	F	+ .05	+0.4	13	E	+ .07	0.0
Mean		+0.020	+0.33	19	B	- .05	-0.3
Corr.			-0.20	Oct. 7	B	- .01	-0.3
30. β ARIETIS.				8	E	- .02	0.0
$\alpha = 1 \ 48 \ 33.778. \ \delta = 20 \ 16 \ 12.12.$				9	B	- .05	+0.7
<i>Circle West.</i>				13 ¹	B	+ .06	[+2.2]
1888 Sept. 8	E	+0.04	-0.6	15	E	- .05	+0.3
Oct. 7	B	+ .01	-1.4	Mean		+0.006	+0.19
13	B	- .01	-0.4	Corr.			+ .16
15	E	+ .01	-0.1	¹ Tel. mic increased 0.7 rev.			
91 Dec. 27	F	- .02	-1.7	<i>Circle East.</i>			
92 Jan. 6	F	+ .03	-1.8	1888 Dec. 29	B	-0.08	+0.8
9	F	- .03	-1.4	89 Jan. 2	E	+ .04	+0.9
14	F	.00	0.0	Oct. 9	B	- .04	+1.2
21	F	- .01	.....	13	B	- .01	+0.4
Mean		+0.002	-0.92	14	B	- .02	+1.6
Corr.			+0.43	29	B	+ .09	+0.8
<i>Circle East.</i>				Mean		-0.003	+0.95
1889 Jan. 10	B	0.00	.....	Corr.			-1.13
Oct. 4	B	+ .01	-0.1	31. 50 CASSIOPEAE, S. P.			
13	B	.00	-0.7	<i>Circle West.</i>			
20	B	- .01	-0.5	1888 May 15	B	-0.05	-0.3
91 Dec. 11	F	+ .03	0.0	Corr.			+ .24
12	F	.....	+0.4	<i>Circle East.</i>			
16	F	+ .06	.....	1889 June 16	B	-0.15	-0.3
17	F	- .01	+0.9	Corr.			- .86
18	F	+ .02	-0.4				
23	F	- .03	+0.8				
Mean		+0.008	+0.05				
Corr.			-0.46				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
545. ν CETI.				Oct. 7	B	0.00	-1.6
$\alpha = 1 \ 54 \ 49.296. \ \delta = -21 \ 36 \ 40.94.$				8	E	.00	-0.1
<i>Circle West.</i>				9	B	-.05	-0.8
1887 Nov. 10	B	.....	+1.1	15	E	+.02	-0.3
Corr .....	.....	.....	+0.37	16	B	+.01	-0.7
32. γ ANDROMEDAE.				31	E	.....	+0.1
$\alpha = 1 \ 57 \ 8.840. \ \delta = 41 \ 48 \ 5.37.$				Mean.....	.....	-0.010	-0.45
<i>Circle West.</i>				Corr .....	.....	.....	+0.30
1888 Sept. 12	B	-0.06	+0.1	<i>Circle East.</i>			
13	E	+.03	+0.1	1888 Dec. 29	B	-0.03	-0.8
19	B	+.06	-0.3	89 Jan. 2	E	+.02	-0.4
Oct. 7	E	-.01	-0.5	Oct. 7	B	-.05	+0.7
8	E	-.01	+1.0	9	B	+.02	-0.8
13	B	-.01	+0.3	17	B	+.01	-0.4
Mean .....	.....	0.000	+0.12	18	B	-.01	-0.3
Corr .....	.....	.....	+0.12	Mean .....	.....	-0.007	-0.33
<i>Circle East.</i>				Corr .....	.....	.....	-0.36
1888 Dec. 29	B	+0.02	-0.2	34. β TRIANGULI.			
89 Jan. 2	E	-.06	+0.1	$\alpha = 2 \ 2 \ 59.921. \ \delta = 34 \ 27 \ 59.81.$			
Oct. 7	B	-.01	+1.4	<i>Circle West.</i>			
17	B	+.03	+0.5	1887 Nov. 10	B	.....	-1.1
18	B	-.01	+0.9	88 Oct. 13	B	-0.07	-0.3
20	B	-.03	0.0	16	B	-.04	-1.1
Mean .....	.....	-0.010	+0.45	31	E	.....	+0.1
Corr.....	.....	.....	-0.82	92 Jan. 21	F	.00	-1.3
33. α ARIETIS.				Mean .....	.....	-0.037	-0.74
$\alpha = 2 \ 0 \ 58.332. \ \delta = 22 \ 56 \ 31.24.$				Corr .....	.....	.....	+0.47
<i>Circle West.</i>				<i>Circle East.</i>			
1888 Sept. 12	B	-0.04	+0.5	1888 Dec. 29	B	-0.08	-0.8
13	E	-.01	-0.7	89 Oct. 13	B	-.07	-0.1
				20	B	-.09	+0.1

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
Dec. 10	F	-0.07	+1.1
11	F	- .06	+1.1
16	F	- .05	+1.0
17	F	- .08	+0.7
18	F	- .08	+0.9
23	F	- .04	+1.3
Mean		-0.069	+0.59
Corr			-0.73

350. 55 CASSIOPEAE.

 $\alpha = 2 \ 5 \ 51.291. \quad \delta = 66 \ 0 \ 29.72.$ *Circle West.*

1888 Sept. 12	B	+0.11	+1.1
19	B	- .02	+0.4
23	E	- .18	+0.8
Oct. 8	E	- .14	+1.4
9	B	.00	+1.6
13	B	+ .01	+0.8
15	E	- .02	+0.7
Mean		-0.034	+0.97
Corr			-0.06

Circle East.

1888 Dec. 29	B	-0.08	+0.6
89 Jan. 2	E	- .02	+1.8
Oct. 1	B	- .07	+1.5
7	B	+ .04	+2.4
9	B	+ .04	+0.5
14	B	- .02	+1.0
Mean		-0.018	+1.30
Corr			-1.01

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
350. 55 CASSIOPEAE, S. P.			
<i>Circle West.</i>			
1888 May 21	E	-0.15	+1.1
25	B	- .06	-0.7
29	B	- .09	-1.3
30	E	.00	-1.6
89 Apr. 19	B	+ .01	+0.5
21	E	+ .06	-0.3
Mean		-0.038	-0.38
Corr			-0.26

Circle East.

1889 May 25	E	-0.02	0.0
27	B	- .10	+0.8
June 5	E	- .14	+0.6
11	B	+ .03	+2.0
12	E	+ .03	+1.4
16	B	- .06	-0.8
Mean		-0.043	+0.67
Corr			-0.86

351. 6 PERSEI.

 $\alpha = 2 \ 6 \ 17.411. \quad \delta = 50 \ 33 \ 15.57.$ *Circle West.*

1888 Sept. 11	B	+0.13	+0.5
13	E	+ .09	+1.0
23	E	+ .12	+0.9
Oct. 7 ¹	B	+ .03	-0.6
15	E	+ .04	+1.2
Mean		+0.082	+0.60
Corr			+0.08

¹ Star faint; clouds.

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				352. γ TRIANGULI. $\alpha = 2 \ 10 \ 46.500. \ \delta = 33 \ 20 \ 17 \ 17.$			
1888 Dec. 29	B	+0.05	+0.3	<i>Circle West.</i>			
89 Oct. 4	B	+ .05	+1.4	1887 Dec. 29	B	-0.04	-1.0
13	B	.00	0.0	88 Oct. 7	B	+ .05	-1.5
17	B	+ .06	+1.3	8	E	- .02	+0.2
18	B	- .01	+1.3	9	B	- .01	-0.5
20	B	- .05	+0.6	13	B	- .12	-0.6
Mean		+0.017	+0.82	15	E	- .03	-0.4
Corr.			-1.12	16	B	+ .05	-1.5

546. LAC. μ FORNACIS. $\alpha = 2 \ 8 \ 3.769. \ \delta = -31 \ 14 \ 25.55.$ *Circle West.*

1891 Dec. 27	F	[+0.23]	-0.9
92 Jan. 6	F	+ .02	+0.3
9	F	+ .01	+0.3
14	F	+ .03	+1.7
21	F	+ .16	+0.2
Mean		+0.055	+0.32
Corr.			+0.33

Circle East.

1891 Dec. 10	F	+0.15	+2.0
11	F	+ .19	+2.4
16	F	+ .16	+1.9
17	F	+ .11	+3.0
18	F	+ .09	+2.5
23	F	+ .17	+3.1
Mean		+0.145	+2.48
Corr.			-0.34

<i>Circle East.</i>			
1889 Jan. 2	E	-0.04	+0.2
Oct. 1 ¹	B	+ .02	[+3.9]
4	B	- .02	+1.0
7	B	- .04	+2.1
9	B	- .02	+0.3
13	B	- .04	+0.7
Mean		-0.023	+0.86
Corr.			-0.80

¹ The Hauptsterne observed indicate a change of over 1 second in the eq. pt. at about 2h.

353. 67 CETI.

 $\alpha = 2 \ 11 \ 29.784 \ \delta = -6 \ 55 \ 45.62.$ *Circle West.*

1887 Dec. 28	B	.....	-0.8
Mean			+0.16

354. δ ARIETIS. $\alpha = 2 \ 12 \ 0.394. \ \delta = 19 \ 23 \ 30.91.$ *Circle West.*

1888 Sept. 12	B	+0.02	+0.4
19	B	+ .06	-0.9

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$	$\Delta Dec.$
Sept. 23	E	+0.03	+0.1	<i>Circle East.</i>			
Oct. 13	B	— .05	—0.4	1889 Oct. 1	B	+0.05	+1.5
15	E	— .03	—0.6	4	B	+ .06	+0.9
16	B	+ .03	—0.9	13	B	+ .01	0.0
Mean		+0.010	—0.38	91 Dec. 16	F	+ .12	+1.6
Corr.			+0.52	17	F	+ .12	+1.6
<i>Circle East.</i>				18	F	+ .16	+1.4
1888 Dec. 29	B	+0.05	—0.8	23	F	+ .07	+1
89 Jan. 2	E	+ .02	—0.5	Mean		+0.084	+1.24
3	B	.....	—1.4	Corr.			—0.28
Oct. 14	B	.00	+0.4	36. ι CASSIOPEAE.			
17	B	+ .04	—0.4	$\alpha = 2 \quad 20 \quad 0.476. \quad \delta = 66 \quad 54 \quad 26.11.$			
18	B	— .02	+0.3	<i>Circle West.</i>			
20	B	+ .02	—0.5	1887 Dec. 29	B	+0.09	+0.3
29	B	— .03	+0.4	88 Oct. 8	E	+ .06	+1.6
Mean.....		+0.011	—0.31	16	B	— .03	+0.2
Corr.			—0.44	Mean.....		+0.040	+0.70
35. $\circ$ CETI.				Corr.			—0.11
$\alpha = 2 \quad 13 \quad 47.328. \quad \delta = -3 \quad 28 \quad 39.53.$				<i>Circle East.</i>			
<i>Circle West.</i>				1888 Dec. 29	B	—0.03	+0.8
1888 Sept. 11	B	0.00	+0.7	89 Jan. 2	E	— .14	+1.8
Oct. 7	B	+ .03	—0.2	3	B	.....	+1.5
92 Jan. 6 ¹	F	[+ .17]	+0.4	Oct. 1	B	— .14	+2.3
9	F	— .03	0.0	Mean.....		—0.103	+1.60
14	F	— .03	+0.1	Corr.			—1.09
21	F	+ .07	—0.1	36. ι CASSIOPEAE, S. P.			
Mean		+0.008	+0.15	<i>Circle West.</i>			
Corr.			+0.18	1888 May 14	B	+0.05	0.0
¹ Rather difficult. Illumination had to be turned down in all observations of the star by F.				June 4	B	+ .04	—0.9
				Mean		+0.045	—0.45
				Corr.			—0.25

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
37. ξ^2 CETI.				Oct. 9	B	— .01	+0.5
$\alpha = 2 \ 22 \ 18.605. \ \delta = 7 \ 57 \ 59.93.$				Mean		—0.117	+0.24
Circle West.				Corr			+0.13
1887 Nov. 28	B	[+0.18]	—0.1	Circle East.			
Dec. 11	B	.....	—1.4	1889 Oct. 4	B	—0.15	+1.3
88 Sept. 12	B	+ .04	—2.0	Corr			—1.11
23	E	+ .02	—0.3	38. 36 H. CASSIOPEAE, S. P.			
Oct. 7	B	.00	—1.9	Circle West.			
8	E	— .08	—0.9	1888 May 29	B	—0.28	—1.0
9	B	+ .04	—0.7	June 4	B	— .12	—0.5
15	E	— .02	—0.7	Mean		—0.200	—0.75
31	E	.....	—0.3	Corr			+0.28
91 Dec. 27	F	.00	—1.7	355. ν ARIETIS.			
Mean		0.000	—1.00	$\alpha = 2 \ 32 \ 34.189. \ \delta = 21 \ 29 \ 7.38.$			
Corr			+0.65	Circle West.			
Circle East.				1887 Nov. 28	B	+0.10	—0.4
1888 Dec. 29	B	+0.02	—1.2	88 Sept. 11	B	+ .07	—2.1
89 Oct. 4	B	— .04	+0.3	18	B	+ .03	—0.1
18	B	+ .03	—0.1	20	B	+ .10	—0.1
91 Dec. 10	F	+ .02	+0.3	Mean		+0.026	—0.16
Mean		+0.026	—0.16	Corr			—0.37
Corr			—0.37	38. 36 H. CASSIOPEAE.			
38. 36 H. CASSIOPEAE.				$\alpha = 2 \ 27 \ 35.130. \ \delta = 72 \ 20 \ 11.15.$			
$\alpha = 2 \ 27 \ 35.130. \ \delta = 72 \ 20 \ 11.15.$				Circle West.			
Circle West.				1887 Dec. 11	B	.....	—0.3
1887 Dec. 11	B	.....	—0.3	13	B	.....	[—4.6]
13	B	.....	[—4.6]	28	B	.....	+0.1
88 Sept. 13	E	—0.12	+0.4	88 Sept. 13	E	—0.12	+0.4
19	B	— .22	+0.5	19	B	— .22	+0.5
355. ν ARIETIS.				Circle East.			
$\alpha = 2 \ 32 \ 34.189. \ \delta = 21 \ 29 \ 7.38.$				1888 Dec. 29	B	+0.01	—1.1
Circle West.				89 Jan. 2	E	— .01	—1.2
1887 Nov. 28	B	+0.10	—0.4	3	B	.....	—1.5
88 Sept. 11	B	+ .07	—2.1	Oct. 1	B	.00	+1.1
13	E	+ .03	—0.8	4	B	— .04	+0.2
19	B	+ .03	—0.8	38. 36 H. CASSIOPEAE.			
23	B	+ .03	—0.3	$\alpha = 2 \ 27 \ 35.130. \ \delta = 72 \ 20 \ 11.15.$			
Oct. 7	B	+ .05	—1.0	Circle West.			
8	E	+ .01	—1.3	1887 Dec. 11	B	.....	—0.3
Mean		+0.046	—0.96	13	B	.....	[—4.6]
Corr			+0.43	28	B	.....	+0.1
355. ν ARIETIS.				88 Sept. 13	E	—0.12	+0.4
$\alpha = 2 \ 32 \ 34.189. \ \delta = 21 \ 29 \ 7.38.$				19	B	— .22	+0.5
Circle West.				Circle East.			
1887 Nov. 28	B	+0.10	—0.4	1888 Dec. 29	B	+0.01	—1.1
88 Sept. 11	B	+ .07	—2.1	89 Jan. 2	E	— .01	—1.2
13	E	+ .03	—0.8	3	B	.....	—1.5
19	B	+ .03	—0.8	Oct. 1	B	.00	+1.1
23	B	+ .03	—0.3	4	B	— .04	+0.2
Oct. 7	B	+ .05	—1.0	38. 36 H. CASSIOPEAE.			
8	E	+ .01	—1.3	$\alpha = 2 \ 27 \ 35.130. \ \delta = 72 \ 20 \ 11.15.$			
Mean		+0.046	—0.96	Circle West.			
Corr			+0.43	1887 Dec. 11	B	.....	—0.3
355. ν ARIETIS.				13	B	.....	[—4.6]
$\alpha = 2 \ 32 \ 34.189. \ \delta = 21 \ 29 \ 7.38.$				28	B	.....	+0.1
Circle West.				88 Sept. 13	E	—0.12	+0.4
1887 Nov. 28	B	+0.10	—0.4	19	B	— .22	+0.5
88 Sept. 11	B	+ .07	—2.1	Circle East.			
13	E	+ .03	—0.8	1888 Dec. 29	B	+0.01	—1.1
19	B	+ .03	—0.8	89 Jan. 2	E	— .01	—1.2
23	B	+ .03	—0.3	3	B	.....	—1.5
Oct. 7	B	+ .05	—1.0	Oct. 1	B	.00	+1.1
8	E	+ .01	—1.3	4	B	— .04	+0.2
Mean		+0.046	—0.96	38. 36 H. CASSIOPEAE.			
Corr			+0.43	$\alpha = 2 \ 27 \ 35.130. \ \delta = 72 \ 20 \ 11.15.$			
355. ν ARIETIS.				Circle West.			
$\alpha = 2 \ 32 \ 34.189. \ \delta = 21 \ 29 \ 7.38.$				1887 Dec. 11	B	.....	—0.3
Circle West.				13	B	.....	[—4.6]
1887 Nov. 28	B	+0.10	—0.4	28	B	.....	+0.1
88 Sept. 11	B	+ .07	—2.1	88 Sept. 13	E	—0.12	+0.4
13	E	+ .03	—0.8	19	B	— .22	+0.5
19	B	+ .03	—0.8	Circle East.			
23	B	+ .03	—0.3	1888 Dec. 29	B	+0.01	—1.1
Oct. 7	B	+ .05	—1.0	89 Jan. 2	E	— .01	—1.2
8	E	+ .01	—1.3	3	B	.....	—1.5
Mean		+0.046	—0.96	Oct. 1	B	.00	+1.1
Corr			+0.43	4	B	— .04	+0.2

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
13	B	— .06	—0.2	13	B	— .01	+1.5
17	B	— .02	—0.3	Mean		+0.037	+0.36
18	B	.....	—0.3	Corr.			—0.14
Mean		—0.020	—0.41	<i>Circle East.</i>			
Corr.			—0.40				

39. δ CETI. $\alpha = 2 \ 33 \ 50.655. \ \delta = -0 \ 8 \ 47.61.$ *Circle West.*

1887 Dec. 13	B	.....	0.0
28	B	.....	+1.7
88 Oct. 9	B	—0.07	+0.2
16	B	— .01	+0.3
92 Jan. 6	F	+ .03	+0.3
14	F	— .13	+0.2
Mean		—0.045	+0.45
Corr.			+0.25

Circle East.

1889 Oct. 9	B	+0.02	+0.5
17	B	.....	—0.1
Mean			+0.20
Corr.			—0.21

356. BR. 366.

 $\alpha = 2 \ 35 \ 22.055. \ \delta = 67 \ 21 \ 23.70.$ *Circle West.*

1887 Dec. 29	B	+0.03	—0.5
88 Sept. 11	B	— .06	—0.7
13	E	+ .11	0.0
19	B	+ .19	+0.7
23	E	— .06	+0.9
Oct. 8	E	+ .06	+0.6

1888 Dec. 29	B	+0.11	+1.7
89 Jan. 2	E	— .04	+0.9
3	B	.....	—0.2
Oct. 7	B	+ .07	+1.9
14	B	— .06	+1.5
18	B	— .07	+1.4
20	B	— .18	+0.9
Mean		—0.028	+1.16
Corr.			—1.17

356. BR. 366, S. P.

Circle West.

1888 May 29	B	—0.02	—0.8
30	E	— .05	—0.7
31	B	.....	+0.2
June 2	E	— .04	—0.4
4	B	.00	+0.8
8	E	+ .16	—1.0
Mean		+0.010	—0.32
Corr.			—0.21

Circle East.

1889 May 25	E	—0.06	—0.3
27	B	— .01	+0.2
June 5	E	.00	+1.3
11	B	+ .02	+1.4
12	E	+ .03	+0.9
16	B	— .08	—1.3
Mean		—0.017	+0.37
Corr.			—0.81

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
40. γ PERSEI.				547. π . CETI.			
$\alpha = 2 \ 36 \ 41.259. \ \delta = 48 \ 45 \ 45.44.$				$\alpha = 2 \ 38 \ 53.211. \ \delta = -14 \ 19 \ 29.90$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Oct. 9	B	+0.02	+1.0	1887 Dec. 11	B	.....	-1.0
Corr.			+0.07	Corr.			+0.51
<i>Circle East.</i>				42. μ CETI.			
1889 Oct. 29	B	+0.01	+1.7	$\alpha = 2 \ 38 \ 59.675. \ \delta = 9 \ 38 \ 57.51.$			
Corr.			-1.06	<i>Circle West.</i>			
357. 35 ARIETIS.				1888 Oct. 16	B	+0.04	-1.2
$\alpha = 2 \ 36 \ 59.782. \ \delta = 27 \ 14 \ 18.85.$				31	E	.....	-1.3
<i>Circle West.</i>				91 Dec. 27	F	+ .04	.....
1888 Sept. 13	E	+ .04	-0.7	92 Jan. 9	F	- .02	-0.7
19	B	.00	-0.8	14	F	- .04	-1.7
23	E	+ .08	-0.4	Mean.....		+0.005	-1.22
Oct. 7	B	+ .03	-1.2	Corr.			+0.56
8	E	.00	+0.3	<i>Circle East.</i>			
13	B	- .04	+0.1	1889 Oct. 7	B	+0.10	+0.4
Mean.....		+0.018	-0.45	17	B	+ .04	-0.1
Corr.			+0.30	91 Dec. 11	F	+ .07	+0.2
<i>Circle East.</i>				18	F	+ .11	+0.4
1888 Dec. 29	B	+0.03	-0.9	Mean		+0.080	+0.22
89 Jan. 2	E	- .01	-0.6	Corr.....			-0.53
3	B	.....	-0.5	43. η PERSEI.			
Oct. 1	B	- .04	+1.3	$\alpha = 2 \ 42 \ 40.489. \ \delta = 55 \ 26 \ 17.49.$			
4	B	- .03	+0.9	<i>Circle West.</i>			
9	B	+ .05	0.0	1888 Oct. 13	B	-0.07	+1.9
13	B	.00	+0.2	15	E	- .06	+1.5
Mean		0.000	+0.06	Mean.....		-0.065	+1.70
Corr			-0.47	Corr.....			+0.04

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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<i>Circle East.</i>				548. τ^2 ERIDANI.			
1888 Dec. 29	B	— .06	+1.2	$\alpha = 2\ 46\ 2.936.$ $\delta = -21\ 27\ 29.00.$			
89 Jan. 3	B		+0.8	<i>Circle West.</i>			
Oct. 13	B	— .08	+1.6	1887 Dec. 29	B	+0.01	+0.3
18	B	— .10	+2.0	Corr. ....	.....	.....	+0.42
Mean.....	.....	—0.080	+1.40	45. τ PERSEI.			
Corr .....	.....	.....	—0.73	$\alpha = 2\ 46\ 27.583.$ $\delta = 52\ 18\ 42.10$			

44. 41 ARIETIS.				<i>Circle West.</i>			
$\alpha = 2\ 43\ 30.516.$ $\delta = 26\ 48\ 23.84.$				1888 Sept. 13	E	+0.06	—0.1
<i>Circle West.</i>				19	B	+ .01	—0.8
1887 Dec. 13	B	.....	—1.1	23	E	+ .05	+0.8
88 Sept. 13	E	0.00	—0.5	Oct. 8	E	+ .02	—0.8
19	B	+ .01	+0.2	91 Dec. 27	F	+ .03	—0.7
23	E	+ .02	+0.3	92 Jan. 9	F	— .04	.....
Oct. 8	E	+ .01	—0.4	14	F	.00	—0.4
91 Dec. 27	F	— .02	—1.7	Mean.....	.....	+0.019	—0.33
92 Jan. 9	F	.00	.....	Corr. ....	.....	.....	+0.21
14	F	+ .02	—0.8	<i>Circle East.</i>			
21	F	+ .01	—0.9	1889 Jan. 3	B	.....	+0.5
Mean.....	.....	+0.006	—0.61	Oct. 9	B	—0.01	+0.6
Corr.....	.....	.....	+0.32	20	B	— .03	+0.5
<i>Circle East.</i>				91 Dec. 10	F	— .01	+1.5
1889 Jan. 2	E	+0.03	—0.2	11	F	— .02	+1.6
3	B	+ .06	—0.1	16	F	— .13	+2.6
Oct. 1	B	.....	+1.0	18	F	— .10	+2.1
91 Dec. 11	F	— .01	+0.4	23	F	+ .02	+2.0
17	F	+ .03	.....	Mean.....	.....	—0.040	+1.42
18	F	+ .03	+1.1	Corr.....	.....	.....	—0.94
Mean .....	.....	+0.028	+0.44				
Corr .....	.....	.....	—0.43				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
46. η ERIDANI.				Oct. 13			
$\alpha = 2 \ 51 \ 3.205. \ \delta = -9 \ 20 \ 10.98$				B			
Circle West.				+ .03			
1891 Dec. 27				Mean			
F				-0.130			
92 Jan. 9				Corr			
F				-0.20			
14				Circle East.			
F				1888 Dec. 29			
21				B			
Mean				-0.09			
+0.008				89 Jan. 2			
-1.33				E			
Corr				- .03			
+0.31				3			
Circle East.				B			
1889 Oct. 1				.....			
B				10			
+0.17				B			
7				- .24			
B				Oct. 4			
+ .10				B			
14				- .04			
B				+0.1			
+ .08				13			
91 Dec. 10				B			
F				+ .02			
- .02				+0.7			
11				17			
F				B			
+ .05				- .18			
16				-0.1			
F				Mean			
+ .07				-0.093			
17				+0.10			
F				Corr			
+ .07				-1.12			
18				358. 47 H. CEPHEI, S. P.			
+ .07				Circle West.			
+0.6				1888 May. 29			
23				B			
F				-0.19			
- .01				June 2			
+0.8				E			
Mean				- .20			
+0.064				8			
+0.87				E			
Corr				- .11			
-0.28				+0.2			
358. 47 H. CEPHEI.				89 April 21			
$\alpha = 2 \ 51 \ 29.206. \ \delta = 78 \ 58 \ 58.85.$				E			
Circle West.				+ .02			
1887 Dec. 13				-1.2			
B				25			
.....				B			
-1.0				- .03			
29				+1.0			
B				Mean			
-0.19				-0.102			
0.0				-0.20			
88 Sept. 11				Corr			
B				-0.04			
- .24				Circle East.			
-1.3				1889 May 3			
13				B			
E				0.00			
- .02				+2.1			
-0.3				25			
19				E			
B				- .24			
- .23				-0.4			
-0.1				27			
23				B			
E				- .24			
- .37				-1.1			
+0.8				June 5			
Oct. 8				E			
E				+ .01			
+ .11				+1.2			
-1.2				12			
1889 May 3				E			
B				- .12			
0.00				+2.4			
+2.1				Mean			
25				-0.118			
E				+0.84			
- .24				Corr			
-0.4				-1.10			
27				Circle East.			
B				1889 May 3			
- .24				B			
-1.1				0.00			
June 5				+2.1			
E				25			
+ .01				E			
+1.2				- .24			
12				-0.4			
E				27			
- .12				B			
+2.4				- .24			
Mean				-1.1			
-0.118				June 5			
+0.84				E			
Corr				+ .01			
-1.10				+1.2			

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
47. α CETI.				49. ρ PERSEI.			
$\alpha = 2 \ 56 \ 31.706. \ \delta = 3 \ 39 \ 27.88.$				$\alpha = 2 \ 58 \ 7.653. \ \delta = 38 \ 24 \ 48.76.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Oct. 15	E	+0.05	-0.1	1887 Dec. 29	B	-0.05	-1.3
91 Dec. 27	F	+ .04	-1.1	88 Sept. 19	B	- .01	-0.7
92 Jan. 9	F	+ .03	-1.1	Oct. 8	E	+ .05	-0.9
14	F	- .06	-0.3	Mean		-0.003	-0.97
21	F	+ .01	-0.7	Corr.			+0.34
Mean		+0.014	-0.66	<i>Circle East.</i>			
Corr.			+0.14	1889 Jan. 10	B	-0.07	+0.7
<i>Circle East.</i>				91 Dec. 10	F	- .08	+0.4
1889 Jan. 2	E	+0.06	-1.0	16	F	- .15	+0.8
Oct. 4	B	+ .02	+0.1	18	F	.00	+0.7
18	B	+ .05	-0.7	23	F	- .05	+1.3
20	B	+ .05	+0.7	Mean		-0.070	+0.78
91 Dec. 10	F	+ .07	+0.4	Corr.			-0.80
11	F	+ .06	+0.6	50. β PERSEI.			
17	F	+ .09	+0.5	$\alpha = 3 \ 1 \ 0.686. \ \delta = 40 \ 31 \ 52.65.$			
Mean		+0.057	+0.09	<i>Circle West.</i>			
Corr.			-0.25	1887 Dec. 13	B	.....	-0.5
48. γ PERSEI.				88 Sept. 11	B	+0.03	-1.6
$\alpha = 2 \ 56 \ 49.842. \ \delta = 53 \ 4 \ 30.34.$				13	E	- .05	-0.1
<i>Circle East.</i>				23	E	+ .06	+1.3
1889 Oct. 1	B	-0.13	+2.0	Oct. 13	B	.00	+0.6
29	B	+ .06	+1.2	Mean		+0.010	-0.06
Mean		-0.035	+1.60	Corr.			+0.20
Corr.			-0.83				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>							
1889 Jan. 2	E	0.00	-0.2	Oct. 7	B	-.02	+1.1
3	B	.....	-0.2	9	B	.00	-0.7
10	B	-.08	+0.5	13	B	+.02	-0.5
Oct. 4	B	-.02	+0.6	Mean.....	.....	-0.002	+0.20
7	B	+.02	+1.9	Corr. ....	.....	.....	-0.43
9	B	+.04	+0.4	360. 48 H. CEPHEI.			
13	B	+.06	+0.2	$\alpha = 3 \ 6 \ 22.661. \ \delta = 77 \ 19 \ 46.18.$			
Mean.....	.....	+0.003	+0.46	<i>Circle West.</i>			
Corr. ....	.....	.....	-0.95	1887 Dec. 13	B	.....	-0.5
51. ι PERSEI.				88 Sept. 19	B	-0.04	-0.4
$\alpha = 3 \ 1 \ 7.762. \ \delta = 49 \ 11 \ 32.84.$				23	E	-.05	+1.4
<i>Circle East.</i>				Oct. 13	B	+.29	+0.9
1889 Oct. 17	B	+0.04	+0.6	15	E	+.28	-0.1
Corr. ....	.....	.....	-1.12	16	B	+.25	+0.6
359. δ ARIETIS.				Mean.....	.....	+0.146	+0.32
$\alpha = 3 \ 5 \ 20.312. \ \delta = 19 \ 18 \ 36.53.$				Corr. ....	.....	.....	-0.12
<i>Circle West.</i>				<i>Circle East.</i>			
1888 Sept. 11	B	0.00	-1.8	1888 Dec. 29	B	+0.29	-0.4
13	E	-.02	-0.4	89 Jan. 2	E	+.29	+1.5
19	B	+.01	-1.5	10	B	+.09	.....
23	E	+.01	+1.4	Oct. 1	B	+.29	+2.7
Oct. 8	E	-.03	-1.4	4	B	+.35	+0.6
16	B	+.02	-1.8	14	B	+.24	+1.4
Mean.....	.....	-0.002	-0.92	17	B	+.22	+0.7
Corr. ....	.....	.....	+0.54	Mean.....	.....	+0.253	+1.08
<i>Circle East.</i>				Corr.....	.....	.....	-1.18
1888 Dec. 29	B	-0.01	+1.7	360. 48 H. CEPHEI, S. P.			
89 Jan. 2	E	-.02	-1.0	<i>Circle West.</i>			
10	B	+.02	+0.6	1888 May 14	B	+0.15	+0.6
				16	E	+.02	+0.2
				21	E	-.02	-0.2
				25	B	+.26	-1.6

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
May 29	B	+ .07	-0.5	52. α PERSEI.			
June 8	E	+ .39	-0.4	$\alpha = 3 \ 16 \ 28.220. \ \delta = 49 \ 28 \ 8.33.$			
Mean.....		+0.145	-0.32	Circle West.			
Corr.....			-0.05	1888 Sept. 11	B	-0.06	-0.8
Circle East.				13	E	+ .03	+0.4
1889 Apr. 30	E	+0.26	+0.6	23	E	- .04	+1.2
May 3	B	+ .30	+1.9	Oct. 16	B	- .06	+0.5
6	E	+ .25	+1.4	91 Dec. 27	F	- .08	+0.1
23	B	+ .19	+1.8	Mean.....		-0.042	+0.28
25	E	+ .13	+0.1	Corr.....			+0.03
27	B	+ .04	+1.4	Circle East.			
Mean.....		+0.195	+1.20	1888 Dec. 29	B	-0.10	+0.1
Corr.....			-1.12	89 Jan. 2	E	- .02	+0.9
549. 12 ERIDANI.				Oct. 4	B	+ .01	+1.6
$\alpha = 3 \ 7 \ 23.913. \ \delta = -29 \ 25 \ 16.18.$				9	B	.00	+1.5
Circle West.				14	B	- .04	+1.7
1892 Jan. 6	F	-0.11	-2.8	91 Dec. 10	F	- .02	+2.4
9	F	- .04	-0.4	11	F	- .04	.....
14	F	- .10	+0.2	17	F	- .16	+2.9
21	F	+ .03	-1.3	18	F	- .07	+2.2
Mean.....		-0.055	-1.08	23	F	- .15	+2.1
Corr.....			+0.30	Mean.....		-0.059	+1.71
Circle East.				Corr.....			-1.14
1891 Dec. 10	F	+0.04	0.0	53. α TAURI.			
11	F	+ .03	+0.8	$\alpha = 3 \ 18 \ 53.612. \ \delta = 8 \ 38 \ 28.47.$			
16	F	+ .13	+1.6	Circle West.			
17	F	+ .07	+1.6	1887 Dec. 13	B	.....	-1.6
18	F	+ .04	+0.6	88 Sept. 19	B	-0.03	-1.1
23	F	+ .01	+0.4	Oct. 15	E	- .01	-0.5
Mean.....		+0.053	+0.83	91 Dec. 27	F	+ .01	-1.7
Corr.....			-0.36	92 Jan. 6	F	- .05	-2.0
53. α TAURI.				9	F	- .05	-1.3
$\alpha = 3 \ 18 \ 53.612. \ \delta = 8 \ 38 \ 28.47.$				Mean.....		-0.026	-1.37
Circle West.				Corr.....			+0.64
1887 Dec. 13	B	.....	-1.6				
88 Sept. 19	B	-0.03	-1.1				
Oct. 15	E	- .01	-0.5				
91 Dec. 27	F	+ .01	-1.7				
92 Jan. 6	F	- .05	-2.0				
9	F	- .05	-1.3				
Mean.....		-0.026	-1.37				
Corr.....			+0.64				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				<i>Circle West.</i>			
1889 Jan. 2	E	0.00	-1.0	1888 June 7	B	+0.03	+0.5
10	B	-.04	+0.3	8	E	+.08	-1.3
Oct. 1	B	-.01	+1.0	15	B	+.02	+1.8
7	B	-.01	+0.6	16	E	.00	+0.7
13	B	+.08	-0.7	89 Apr. 21	E	+.13	-1.9
17	B	-.02	.....	Mean.....		+0.052	-0.04
Mean		0.000	+0.04	Corr.....			-0.32
Corr			-0.42				

361. 2 H. CAMELOPARDI.

 $\alpha = 3 \ 20 \ 9.829. \ \delta = 59 \ 33 \ 22.68.$ *Circle West.*

1888 Sept. 11	B	-0.07	-1.3
13	E	+.07	+0.2
19	B	+.01	0.0
23	E	+.06	+0.9
Oct. 8	E	-.06	-0.7
13	B	-.01	+0.9
Mean		0.000	0.00
Corr.			-0.12

Circle East.

1888 Dec. 29	B	-0.04	-1.2
89 Jan. 2	E	-.02	+0.3
10	B	-.09	+1.1
Oct. 4	B	+.07	+0.3
9	B	+.03	+0.1
18	B	-.03	+1.1
Mean.....		-0.013	+0.28
Corr.....			-0.89

361. 2 H. CAMELOPARDI, S. P.

Circle West.

1888 June 7	B	+0.03	+0.5
8	E	+.08	-1.3
15	B	+.02	+1.8
16	E	.00	+0.7
89 Apr. 21	E	+.13	-1.9
Mean.....		+0.052	-0.04
Corr.....			-0.32

Circle East.

1889 June 5	E	+0.10	+0.7
11	B	-.03	+2.1
12	E	+.13	+1.2
16	B	-.06	+0.4
19	E	+.04	+1.7
Mean		+0.036	+1.22
Corr.			-0.97

362. σ PERSEI. $\alpha = 3 \ 22 \ 49.199. \ \delta = 47 \ 36 \ 53.39.$ *Circle West.*

1888 Sept. 11	B	+0.04	-1.4
13	E	+.05	-0.3
19	B	+.01	-0.3
23	E	+.03	+0.2
Oct. 8	E	+.01	-0.7
13	B	+.07	-0.4
Mean.....		+0.035	-0.48
Corr.....			+0.26

Circle East.

1888 Dec. 29	B	-0.02	-0.1
89 Jan. 2	E	-.05	+0.1

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
Jan. 10	B	.00	+1.2	56. ϵ ERIDANI. $\alpha = 3 \ 27 \ 44.847. \ \delta = -9 \ 49 \ 52.51.$ <i>Circle West.</i>			
Oct. 1	B	— .05	+1.9				
7	B	— .04	+1.8				
17	B	.00	—0.1				
Mean.....		—0.027	+0.80				
Corr.....			—0.86				

55. f TAURI.

$$\alpha = 3 \ 24 \ 47.968. \ \delta = 12 \ 33 \ 33.07.$$

Circle West.

1887 Dec. 29	B	+0.04	—1.1
88 Sept. 11	B	+ .05	—1.7
Oct. 13	B	.00	—0.1
15	E	— .04	—0.1
92 Jan. 6	F	+ .02	.....
9	F	— .03	—1.2
14	F	— .04	—0.8
21	F	+ .02	—0.8
Mean.....		+0.002	—0.83
Corr.....			+0.50

Circle East.

1888 Dec. 29	B	—0.02	0.0
89 Oct. 14	B	— .03	+1.3
29	B	+ .03	+0.5
91 Dec. 11	F	.00	+0.9
16 ¹	F	[+ .17]	+0.3
17	F	+ .05	+1.4
18	F	+ .04	+0.9
23	F	+ .01	+1.4
Mean.....		+0.011	+0.84
Corr.....			—0.64

¹ Very poor seeing.

1887 Dec. 13	B	.....	+0.2
88 Sept. 11	B	0.00	.....
13	E	— .03	+0.3
19	B	— .02	—0.1
23	E	+ .06	+1.6
Oct. 13	B	+ .02	—0.4
15	E	+ .02	+0.6
91 Dec. 27	F	+ .06	—0.7
Mean.....		+0.016	+0.21
Corr.....			+0.31

Circle East.

1888 Dec. 29	B	+0.06	—1.2
89 Jan. 2	E	+ .01	0.0
10	B	.00	+0.8
Oct. 4	B	+ .07	+1.5
7	B	+ .12	+1.9
9 ¹	B	+ .11	[+0.7]
13	B	+ .12	+1.0
18	B	+ .10	.....
91 Dec. 10	F	+ .03	+0.7
11	F	+ .03	+1.0
17	F	+ .04	+1.7
23	F	+ .05	+1.3
Mean.....		+0.062	+0.87
Corr.....			—0.36

¹ Tel. mic. increased 0.2 rev.

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
363. GR. 716.				<i>Circle East.</i>			
$\alpha = 3 \ 32 \ 36.790. \ \delta = 62 \ 51 \ 34.15.$							
<i>Circle West.</i>							
1888 Sept. 11	B	-0.08	-1.6	1889 May 25	E	-0.08	+0.9
13	E	- .01	-0.7	27	B	- .12	-0.3
19	B	- .04	-0.8	June 5	E	+ .03	+1.5
23	E	.00	-0.4	11	B	- .06	+3.0
Oct. 8	E	- .07	-0.5	16	B	- .15	+1.3
13	B	+ .01	-0.1	19	E	.00	+1.9
Mean		-0.032	-0.68	Mean.....		-0.063	+1.38
Corr.			-0.19	Corr.			-0.86
<i>Circle East.</i>				57. δ PERSEI.			
				$\alpha = 3 \ 35 \ 5.599. \ \delta = 47 \ 26 \ 6.32.$			
				<i>Circle West.</i>			
1888 Dec. 29	B	+0.01	-0.8	1888 Sept. 11	B	0.00	-1.4
89 Jan. 2	E	+ .08	-0.5	13	E	+ .08	+0.4
10	B	- .08	+0.2	19	B	- .02	-0.4
Oct. 1	B	- .13	+1.7	Oct. 13	B	+ .06	-0.1
4	B	- .02	-0.4	15	E	+ .01	-0.1
7	B	- .04	+1.2	16	B	+ .04	+0.8
Mean.....		-0.030	+0.23	Mean.....		+0.028	-0.13
Corr.			-0.83	Corr.			+0.30
363. GR. 716, S. P.				<i>Circle East.</i>			
<i>Circle West.</i>							
1888 May 30	E	+0.03	-1.5	1888 Dec. 29	B	-0.10	+0.2
June 2	E	+ .10	+0.2	89 Oct. 1	B	- .08	+2.3
8	E	+ .14	+0.2	9	B	- .05	+0.2
15	B	- .07	+1.5	13	B	- .06	-0.2
16	E	- .10	+1.4	14	B	- .04	+0.6
89 Apr. 21	E	+ .16	-0.7	17	B	- .02	+0.5
Mean.....		+0.043	+0.18	Mean.....		-0.058	+0.57
Corr.			-0.23	Corr.			-0.83

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
59. ν PERSEI.				364. 5 H. CAMELOPARDI.			
$\alpha = 3 \ 37 \ 43.297. \ \delta = 42 \ 13 \ 49.08.$				$\alpha = 3 \ 38 \ 45.104. \ \delta = 70 \ 59 \ 32.00.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1891 Dec. 27	F	-0.06	-0.7	1888 Sept. 13	E	+0.13	-0.5
92 Jan. 14	F	- .03	+0.4	19	B	+ .05	+0.2
21	F	- .01	-0.3	23	E	+ .05	+0.7
Mean		-0.033	-0.20	Oct. 8	E	+ .11	-0.5
Corr.			+0.01	13	B	+ .32	+0.2
<i>Circle East.</i>				16	B	+ .14	+0.7
1889 Oct. 7	B	-0.06	+2.3	Mean.....		+0.133	+0.13
18	B	- .09	+1.8	Corr			+0.26
20	B	- .07	+1.7	<i>Circle East.</i>			
29	B	- .04	+1.9	1888 Dec. 29	B	+0.10	+0.1
91 Dec. 10	F	+ .01	+1.3	89 Jan. 2	E	+ .09	+1.2
11	F	- .10	+2.1	10	B	+ .10	+1.6
16	F	- .02	+1.1	Oct. 4	B	+ .22	+0.7
17	F	- .09	+1.8	9	B	+ .17	+1.4
18	F	- .06	+1.8	13	B	- .02	+1.1
23	F	- .04	+2.1	Mean		+0.110	+1.02
Mean.....		-0.056	+1.79	Corr			-1.22
Corr.			-0.71				
550. δ ERIDANI.				364. 5 H. CAMELOPARDI, S. P.			
$\alpha = 3 \ 37 \ 58.706. \ \delta = -10 \ 8 \ 11.16.$				<i>Circle West.</i>			
<i>Circle West.</i>				1888 May 21	E	+0.10	-0.5
1887 Dec. 13	B	.....	+0.1	25	B	+ .14	-0.7
Corr.			+0.31	29	B	+ .18	-1.6
60. 17 TAURI.				30	E	+ .07	-2.2
$\alpha = 3 \ 38 \ 20.578. \ \delta = 23 \ 46 \ 0.85.$				June 2	E	+ .11	-1.4
<i>Circle West.</i>				4	B	+ .18	+0.1
1888 Sept. 11	B	+0.04	-2.0	Mean.....		+0.130	-1.05
Corr			+0.28	Corr			+0.04

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				Oct. 13	B	+ .02	+0.2
1889 May 3	B	+0.07	+0.7	Mean		-0.003	+0.27
23	B	+ .04	+0.7	Corr			+0.28
27	B	+ .10	+1.9	<i>Circle East.</i>			
June 5	E	+ .15	+0.2	1889 Jan. 2	E	-0.02	-0.5
12	E	+ .09	+0.7	22	B	- .07	.....
19	E	+ .22	-0.2	Mean		-0.045	-0.50
Mean.....		+0.112	+0.67	Corr			-0.40
Corr.....			-0.88				

61. η TAURI. $\alpha = 3 \ 40 \ 56.708. \ \delta = 23 \ 45 \ 51.97.$ *Circle West.*

1888 Nov. 10	B	-0.01	0.0
92 Jan. 21	F	- .01	-0.8
Mean		-0.010	-0.40
Corr.....			+0.28

Circle East.

1888 Dec. 29	B	+0.05	[-2.4]
89 Jan. 2	E	- .01	0.0
10	B	- .02	+0.2
Oct. 1	B	+ .01	+0.9
14	B	- .01	+0.7
20	B	- .01	-0.4
Mean		+0.002	+0.28
Corr			-0.41

62. 27 TAURI.

 $\alpha = 3 \ 42 \ 37.263. \ \delta = 23 \ 42 \ 58.85.$ *Circle West.*

1888 Sept. 13	E	-0.02	+0.5
19	B	- .01	+0.1

63. ζ PERSEI. $\alpha = 3 \ 47 \ 13.045. \ \delta = 31 \ 33 \ 22.82.$ *Circle West.*

1887 Dec. 29	B	-0.10	-2.7
88 Oct. 30	B	- .05	-0.6
Nov. 2	E	- .02	-0.5
91 Dec. 27	F	- .03	-1.3
92 Jan. 21	F	+ .01	.....
Mean.....		-0.038	-1.28
Corr.....			+0.18

Circle East.

1889 Oct. 18	B	+0.01	-0.2
29	B	- .01	0.0
Nov. 16	B	- .07	+1.2
17	B	+ .01	+0.6
25	B	- .08	-0.8
Mean.....		-0.028	+0.16
Corr.....			-0.66

365. 9 H. CAMELOPARDI.

 $\alpha = 3 \ 47 \ 45.593. \ \delta = 60 \ 47 \ 9.21.$ *Circle West.*

1888 Sept. 13	E	+0.10	-0.2
19	B	- .01	-0.3

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Sept. 23	E	— .02	+0.2	19	E	+ .05	+1.2
Oct. 8	E	+ .01	—0.9	Mean .....	.....	—0.017	+1.92
13	B	+ .13	+0.4	Corr .....	.....	.....	—1.04
16	B	+ .06	+0.7	64. ϵ PERSEI.			
Mean .....	.....	+0.045	—0.02	$\alpha = 3 \ 50 \ 28.320. \ \delta = 39 \ 41 \ 28.88.$			
Corr .....	.....	.....	—0.11	Circle West.			
Circle East.				1888 Oct. 8	E	+0.01	—0.9
1888 Dec. 29	B	+0.01	—1.0	3)	B	+ .01	—1.6
89 Jan. 2	E	— .03	0.0	Nov. 2	E	+ .06	—0.3
10	B	— .10	+0.1	10	B	+ .04	—0.7
Oct. 4	B	+ .06	+0.3	Mean .....	.....	+0.030	—0.88
14	B	.00	—0.1	Corr .....	.....	.....	+0.15
17	B	— .01	+0.3	Circle East.			
Mean .....	.....	—0.012	—0.07	1889 Jan. 10	B	—0.01	+0.1
Corr .....	.....	.....	—0.87	Oct. 4	B	+ .05	+1.3
365. 9 H. CAMELOPARDI, S. P.				29	B	+ .04	+0.9
Circle West.				Nov. 5	B	+ .04	+0.9
1888 May 30	E	+0.01	[—2.6]	16	B	— .04	+1.5
June 2	E	+ .05	+0.1	17	B	— .01	+1.0
6	E	+ .14	0.0	Mean .....	.....	+0.012	+0.95
7	B	— .03	—1.1	Corr .....	.....	.....	—0.95
8	E	+ .10	—0.3	65. ξ PERSEI.			
15	B	.00	+1.5	$\alpha = 3 \ 51 \ 49.650. \ \delta = 35 \ 28 \ 26.43.$			
Mean .....	.....	+0.045	+0.04	Circle West.			
Corr .....	.....	.....	—0.21	1888 Sept. 19	B	+0.02	—0.5
Circle East.				Oct. 13	B	.00	—0.2
1889 May 23	B	—0.06	+2.5	91 Dec. 27	F	— .04	—1.5
June 5	E	— .06	+1.9	92 Jan. 9	F	+ .01	—0.1
11	B	— .06	[+4.6]	21	F	.00	—0.9
12	E	+ .08	+2.3	Mean		—0.002	—0.64
16	B	— .05	+1.7	Corr			+0.56

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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<i>Circle East.</i>				<i>Circle East.</i>			
1888 Dec. 29	B	+0.01	-1.3	1888 Dec. 29	B	0.00	-1.4
89 Jan. 2	E	-.04	0.0	89 Jan. 2	E	-.02	0.0
Feb. 1	B	-.05	-0.1	10	B	-.01	-0.1
Oct. 13	B	-.01	-0.1	Oct. 1	B	+.02	+1.5
17	B	+.03	+0.3	4	B	+.03	.....
Nov. 6	B	-.01	+1.3	9	B	+.02	+0.6
9	B	+.04	+0.3	18	B	-.02	+0.7
Mean		-0.004	+0.06	Nov. 17	B	-.02	+1.2
Corr.			-0.65	91 Dec. 17	F	-.02	+0.9
				18	F	-.01	+0.7
				Mean		-0.003	+0.46
				Corr.			-0.63

552. γ ERIDANI.
 $\alpha = 3 \ 52 \ 53.810. \ \delta = -13 \ 49 \ 19.27.$

<i>Circle West.</i>			
1887 Dec. 29	B	-0.12	+1.3
Corr			+0.48

66. λ TAURI.
 $\alpha = 3 \ 54 \ 35.140. \ \delta = 12 \ 10 \ 44.00.$

<i>Circle West.</i>			
1888 Sept. 13	E	+0.02	-0.8
19	B	.00	-0.8
23	E	-.03	-0.4
Oct. 8	E	-.06	-0.3
13	B	-.02	-0.6
16	B	+.01	.....
30	B	.00	-0.9
Nov. 2	E	-.01	0.0
10	B	-.03	-0.7
91 Dec. 27	F	-.02	-1.9
92 Jan. 14	F	-.08	.....
Mean		-0.020	-0.71
Corr.			+0.49

67. ν TAURI.
 $\alpha = 3 \ 57 \ 18.286. \ \delta = 5 \ 41 \ 0.50.$

<i>Circle West.</i>			
1888 Sept. 13	E	-0.02	-0.1
Oct. 8	E	-.04	-0.6
13	B	-.04	-0.3
Nov. 2	E	-.01	+0.1
10	B	-.03	-0.3
16	B	.00	+1.6
Mean		-0.023	+0.07
Corr.			+0.30

<i>Circle East.</i>			
1888 Dec. 29	B	0.00	-1.3
89 Jan. 2	E	-.02	-0.2
10	B	+.04	-0.7
22	B	-.04	.....
Feb. 1	B	-.01	-1.1
Oct. 7	B	.00	.....

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Oct. 13	B	+ .02	+0.5	68. GR. 750. $\alpha = 4 \ 2 \ 13.288. \quad \delta = 85 \ 15 \ 50.55.$ <i>Circle West.</i>			
14	B	.00	.....				
17	B	- .01	+0.1				
Nov. 9	B	- .03	+0.8				
16	B	- .03	+1.1				
91 Dec. 11	F	- .06	.....				
Mean		-0.012	-0.10				
Corr.			-0.35				

69. c PERSEI.

$$\alpha = 4 \ 0 \ 40.546. \quad \delta = 47 \ 25 \ 4.76.$$

Circle West.

1888 Oct. 30	B	-0.02	-0.6
92 Jan. 9	F	+ .09	-0.7
14	F	+ .08	+0.1
21	F	+ .05	-0.4
Mean.....		+0.050	-0.40
Corr.....			+0.30

Circle East.

1889 Feb. 1	B	+0.02	+0.5
Nov. 17	B	- .01	+1.0
25	B	- .07	+1.3
Dec. 6	B	.....	+0.8
91 Dec. 11	F	.00	+1.4
16	F	- .13	+1.7
17	F	+ .03	+2.0
18	F	- .02	+1.8
23	F	+ .06	+0.8
Mean.....		-0.015	+1.26
Corr.....			-0.83

1887 Dec. 13	B	.....	+1.0
29	B	-0.15	+0.5
88 Jan. 18	B	.....	[-6.0]
27	B	- .12	.....
Sept. 11	B	- .14	+0.1
13	E	- .07	+0.6
19	B	+ .01	+1.3
23	E	+ .07	+0.1
Oct. 8	E	+ .37	-0.5
13	B	+ .01	+1.3
15	E	+ .14	+0.9
16	B	+ .02	+1.9
30	B	+ .01	+1.0
Nov. 2	E	+ .09	+1.0
10	B	+ .17	+1.0
12	E	+ .03	+0.9
16	B	- .05	+0.9
19	E	- .03	+0.1
21	E	+ .69	.....
22	B	+ .09	.....
23	B	+ .42	.....
91 Dec. 27	F	+ .26	.....
92 Jan. 9	F	+ .81	+0.5
14	F	+ .63	.....
21	F	+ .45	.....
Mean		+0.161	+0.74
Corr.....			-0.37

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				23	F	+ .42	.....
				Mean.....	.....	+0.066	+1.18
				Corr.....	.....	.....	-0.81
1888 Dec. 29	B	-0.12	+0.1	68. GR. 750, S. P.			
89 Jan. 2	E	.00	+1.1	<i>Circle West.</i>			
10	B	- .02	+1.0	1888 May 21	E	-0.05	-0.7
22	B	- .04	+0.2	25	B	+ .03	-0.6
23	E	+ .01	+0.2	28	E	- .03	+0.1
Feb. 1	B	- .04	+0.2	29	B	+ .08	-1.4
Oct. 1	B	.00	+1.2	30	E	- .12	-2.4
4	B	+ .16	+1.8	June 2	E	- .21	-1.3
7	B	- .04	.....	4	B	+ .14	-0.8
9	B	+ .02	+1.2	6	E	+ .05	+0.1
13	B	- .16	+0.8	7	B	+ .14	0.0
14	B	+ .13	+1.5	8	E	- .07	-0.7
17	B	+ .11	+1.2	15	B	+ .02	+0.1
18	B	+ .27	+1.5	16	E	+ .31	0.0
20	B	+ .08	+1.7	21	B	- .11	+0.2
27	B	.....	+0.5	22	E	+ .05	+0.2
29	B	+ .06	+1.5	23	E	- .19	+0.6
Nov. 5	B	+ .20	+1.8	30	E	+ .20	.....
6	B	- .06	+1.2	July 2	B	+ .02	.....
9	B	+ .06	+1.7	89 Apr. 21	E	+ .10	-0.2
16	B	+ .23	+1.7	25	B	+ .01	+1.0
17	B	- .47	+2.1	Mean.....	.....	+0.019	-0.34
25	B	+ .06	+1.1	Corr. ....	.....	.....	-0.37
30	B	- .02	+1.5	<i>Circle East.</i>			
Dec. 6	B	.....	+1.0	1889 Apr. 30	E	+0.27	-0.6
8	B	- .06	+0.8	May 3	B	+ .01	+0.2
18	B	+ .12	+1.2	6	E	+ .02	+0.4
91 Dec. 10	F	+ .56	+2.0	23	B	- .06	+0.8
11	F	+ .52	.....	25	E	.00	+0.6
16	F	- .02	.....				
17	F	+ .06	.....				
18	F	+ .03	.....				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
May 27	B	.....	+0.2	70. γ TAURI.			
June 5	E	+ .18	+0.7	$\alpha = 4 \ 13 \ 31.989. \ \delta = 15 \ 21 \ 40.51.$			
11	B	- .15	+0.9	<i>Circle West.</i>			
16	B	+ .10	+0.3	1887 Dec. 29	B	-0.05	-1.2
19	E	- .03	+0.4	88 Nov. 12	E	- .02	-0.4
25	B	+ .15	0.0	Mean .....	.....	-0.035	-0.80
29	E	- .12	-0.3	Corr .....	.....	.....	+0.70
July 1	B	- .03	+0.6	<i>Circle East.</i>			
5	E	+ .05	+0.1	1889 Feb. 1	B	0.00	0.0
7	B	+ .01	+0.7	Oct. 27	B	+ .01	+0.4
10	E	+ .11	+0.5	Nov.] 5	B	.00	+1.3
23	E	+ .21	-0.4	6	B	.00	-0.1
Mean .....	.....	+0.045	+0.30	17	B	+ .02	+1.9
Corr .....	.....	.....	-0.84	25	B	- .06	+1.6
367. 54 PERSEI.				30	B	+ .02	+0.8
$\alpha = 4 \ 13 \ 16.056. \ \delta = 34 \ 18 \ 1.25.$				Dec. 8	B	- .01	+0.5
<i>Circle West.</i>				Mean .....	.....	-0.002	+0.80
1888 Sept. 23	E	+0.03	-0.1	Corr .....	.....	.....	-0.83
Oct. 8	E	- .01	-0.9	71. δ TAURI.			
16	B	+ .07	+0.1	$\alpha = 4 \ 16 \ 35.443. \ \delta = 17 \ 17 \ 1.97.$			
30	B	+ .02	-0.2	<i>Circle West.</i>			
Nov. 2	E	- .02	+0.5	1888 Sept. 23	E	+0.02	-1.1
10	B	+ .04	+0.1	Oct. 16	B	+ .02	-1.5
Mean .....	.....	+0.022	-0.08	Nov. 12	E	+ .01	-0.8
Corr .....	.....	.....	+0.45	16	B	- .03	-0.1
<i>Circle East.</i>				91 Dec. 27	F	- .08	-2.4
1889 Jan. 22	B	-0.06	-0.8	92 Jan. 9	F	- .06	-1.7
23	E	- .04	-0.5	14	F	+ .05	-1.7
Oct. 7	B	- .06	+1.7	21	F	+ .01	-2.7
9	B	- .01	+0.2	Mean .....	.....	-0.008	-1.50
13	B	+ .01	0.0	Corr			+0.87
17	B	- .02	+0.7				
Mean		-0.030	+0.22				
Corr			-0.75				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
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Circle East.				Circle East.			
1889 Jan. 22	B	0.00	-1.6	1889 Oct. 1	B	-0.01	+0.3
23	E	+ .01	-0.3	9	B	+ .02	-0.4
Feb. 1	B	- .01	-1.0	20	B	+ .07	-0.1
Oct. 7	B	- .04	+1.2	Nov. 17	B	- .04	+0.3
9	B	+ .07	.....	25	B	- .01	+0.9
13	B	+ .01	.....	30	B	- .01	+0.3
20	B	+ .02	+0.8	Dec. 18	B	.00	0.0
27	B	- .02	.....	91 Dec. 10	F	+ .02	+0.3
29	B	+ .04	+0.3	11	F	.00	+0.9
Nov. 5	B	- .01	+0.9	16	F	+ .09	-0.1
6	B	+ .02	-0.1	17	F	- .09	+0.7
9	B	- .01	.....	18	F	- .03	+0.5
16	B	- .03	+1.5	23	F	- .02	+0.1
Dec. 6	B	.00	+0.8	Mean .....	.....	-0.001	+0.28
18	B	- .02	+0.3	Corr .....	.....	.....	-0.41
91 Dec. 10	F	+ .03	+0.9	368. 1 CAMELOPARDI seq.			
11	F	- .02	+0.9	$\alpha = 4 \quad 23 \quad 19.156. \quad \delta = 53 \quad 40 \quad 15.17.$			
16 ¹	F	[+ .14]	.....	Circle West.			
17	F	+ .01	+0.8	1888 Sept. 23	E	-0.01	+0.2
18	F	- .03	+1.3	Oct. 8	E	- .12	-1.6
23	F	+ .06	+0.4	16	B	+ .03	-0.3
Mean .....	.....	+0.004	+0.44	30	B	.00	-0.4
Corr .....	.....	.....	-0.56	Nov. 2	E	+ .02	+0.2
¹ Very poor seeing.				10	B	- .02	-0.6
72. ϵ TAURI.				Mean.....	.....	-0.017	-0.42
$\alpha = 4 \quad 22 \quad 11.591. \quad \delta = 18 \quad 56 \quad 8.75.$				Corr.....	.....	.....	+0.22
Circle West.				Circle East.			
1888 Nov. 12	E	+0.01	-0.4	1889 Jan. 22	B	-0.06	-0.5
91 Dec. 27	F	- .05	-1.7	23	E	- .14	-0.4
92 Jan. 9	F	- .02	-1.1	Feb. 1	B	- .06	-0.2
14	F	+ .05	-0.8				
21	F	- .02	.....				
Mean.....	.....	-0.006	-1.00				
Corr. ....	.....	.....	+0.61				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
Oct. 27	B	+ .03	+1.5	74. ν ERIDANI.			
Nov. 9	B	- .09	+1.2	$\alpha = 4 \ 30 \ 49.305. \ \delta = -3 \ 34 \ 40.43.$			
16	B	- .12	+1.0	<i>Circle West.</i>			
Dec. 6	B	- .03	+0.7				
Mean.....		-0.067	+0.47	1888 Oct. 8	E	+0.07	-0.4
Corr.....			-0.77	16	B	- .02	-1.3
73. α TAURI.				Nov. 2	E	- .01	-0.7
$\alpha = 4 \ 29 \ 36.485. \ \delta = 16 \ 17 \ 14.86.$				12	E	+ .05	+0.1
<i>Circle West.</i>				19	E	+ .02	-0.8
				22	B	+ .10	-2.0
1888 Sept. 23	E	+0.01	-0.3	91 Dec. 27	F	+ .07	-1.3
Oct. 8	E	- .06	-1.6	92 Jan. 9	F	- .02	-0.7
30	B	- .04	-1.6	14	F	+ .04	-1.0
Nov. 10	B	- .01	-1.4	21	F	- .02	-1.4
19	E	- .01	-1.5	Mean.....		+0.028	-0.95
23	B	- .01	-1.3	Corr.....			+0.17
Mean.....		-0.020	-1.28	<i>Circle East.</i>			
Corr.....			+0.84				
<i>Circle East.</i>				1889 Jan. 23	E	+0.08	-1.3
1889 Jan. 22	B	-0.02	-1.4	Feb. 1	B	+ .04	-1.5
Oct. 20	B	+ .03	.....	Oct. 27	B	+ .01	+0.2
29	B	+ .01	-0.2	Nov. 5	B	+ .08	-0.9
Nov. 9	B	+ .04	+0.4	6	B	+ .07	-0.8
30	B	+ .01	+0.4	16	B	+ .08	+0.3
Dec. 8	B	+ .03	+0.3	25	B	+ .13	+1.2
Mean.....		+0.017	-0.10	Dec. 6	B	+ .02	-0.3
Corr.....			-0.82	18	B	+ .05	-1.0
				91 Dec. 10	F	+ .06	+0.1
				11	F	+ .05	+0.2
				17	F	+ .05	+0.6
				18	F	+ .09	-0.1
				23	F	- .03	+0.1
				Mean.....		+0.056	-0.23
				Corr.....			-0.28

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
369. GR. 848.				Circle East.			
$\alpha = 4 \ 34 \ 2.405.$ $\delta = 75 \ 44 \ 22.21.$							
Circle West.							
1888 Sept. 23	E	-0.16	-0.5	1889 June 5	E	-0.12	+1.8
Oct. 8	E	- .09	-0.6	11	B	[+1.59]	+2.2
16	B	+ .04	0.0	16	B	+ .03	+1.4
30	B	- .08	-0.4	19	E	- .01	+2.0
Nov. 2	E	- .10	+1.6	25	B	- .07	+1.1
10	B	+ .05	-0.8	29	E	- .15	+1.6
Mean.....		-0.057	-0.12	Mean.....		-0.064	+1.68
Corr.....			+0.02	Corr.....			-1.20
Circle East.							
1889 Jan. 22	B	-0.13	-0.6	370. τ TAURI.			
23	E	- .20	+0.1	$\alpha = 4 \ 35 \ 38.538.$ $\delta = 22 \ 44 \ 42.97.$			
Oct. 20	B	- .11	+0.4	Circle West.			
Nov. 9	B	+ .01	+0.7	1888 Sept. 23	E	+0.06	-0.6
17	B	- .03	+1.7	Oct. 16	B	+ .04	-0.3
25	B	- .05	+1.3	30	B	- .04	-0.9
30	B	- .01	+0.5	Nov. 10	B	- .03	-0.7
Mean.....		-0.074	+0.59	12	E	+ .04	-0.1
Corr.....			-1.07	19	E	- .03	-1.2
369. GR. 848, S. P.				Mean.....		+0.007	-0.63
Circle West.				Corr.....			+0.32
1888 May 30	E	+0.06	-1.6	Circle East.			
June 2	E	- .07	+0.5	1889 Jan. 23	E	+0.02	-0.2
6	E	- .10	+0.3	Feb. 1	B	+ .03	-0.7
7	B	.....	-0.1	Oct. 20	B	+ .06	+0.1
8	E	- .05	0.0	Nov. 5	B	.00	-0.2
89 Apr. 25	B	+ .02	+1.6	17	B	- .03	+0.2
Mean.....		-0.028	+0.12	Dec. 6 ¹	B	+ .02	[-0.1]
Corr.....			+0.01	Mean.....		+0.017	-0.16
				Corr.....			-0.36

¹ Tel. mic. diminished 0.2 rev.

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
371. 4 CAMELOPARDI.				Nov. 17 B + .04 +0.5			
$\alpha = 4 \ 38 \ 50.403. \ \delta = 56 \ 33 \ 38.78.$				30 B + .05 -0.1			
Circle West.				Dec. 8 B + .03 -0.7			
1883 Sept. 23	E	+0.04	+0.1	Mean.....		+0.043	+0.28
Oct. 8	E	.00	+0.7	Corr.....			-0.28
30	B	+ .06	+0.2				
Nov. 2	E	+ .05	+0.5	76. 9 CAMELOPARDI.			
10	B	+ .15	+1.0	$\alpha = 4 \ 43 \ 6.967. \ \delta = 66 \ 9 \ 16.82.$			
21	B	+ .08	+0.3	Circle West.			
22	B	+ .08	-0.2				
Mean.....		+0.066	+0.37	1888 Oct. 8	E	+0.05	0.0
Corr.....			+0.06	30	B	+ .01	+0.2
Circle East.				Nov. 10	B	+ .07	0.0
1889 Jan. 22	B	+0.06	+0.1	12	E	+ .07	+1.1
23	E	- .03	+0.2	16	B	- .15	-1.1
Oct. 29	B	+ .03	+1.2	19	E	- .02	0.0
Nov. 5	B	+ .08	+1.5	23	B	- .12	+0.4
6	B	+ .12	+1.0	Mean.....		-0.013	+0.09
16	B	+ .02	+0.2	Corr.....			-0.07
25	B	+ .07	+1.9	Circle East.			
Mean.....		+0.050	+0.87				
Corr.....			-0.82				
75. μ ERIDANI.				1889 Jan. 22			
$\alpha = 4 \ 40 \ 0.009. \ \delta = -3 \ 27 \ 24.74.$				23	E	- .01	+0.4
Circle West.				Oct. 29	B	- .06	+1.3
1888 Nov. 23	B	+0.04	-1.2	Nov. 6	B	+ .03	+1.5
Corr.....			+0.18	16	B	- .02	+1.2
Circle East.				25	B	+ .05	+1.7
1889 Feb. 1	B	+0.01	[-2.2]	Dec. 6	B	+ .03	+0.7
Oct. 17	B	+ .06	+1.4	18	B	- .01	+0.8
Nov. 9	B	+ .07	+0.3	Mean.....		+0.008	+1.05
				Corr.....			-1.02

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
76. 9 CAMELOPARDI, S. P.				5 ORIONIS.			
<i>Circle West.</i>				$\alpha = 4 \ 47 \ 38.565. \quad \delta = 2 \ 19 \ 32.93.$			
1888 June 30	E	-0.01	-0.2	<i>Circle West.</i>			
Corr			-0.26	1891 Dec. 27 ¹	F	-0.02	.....
<i>Circle East.</i>				¹ The values of $\Delta\alpha$ and $\Delta\delta$ given for this star are the quantities which when applied to the mean of the observed places for 1891.0 will produce the several observations for 1891.0.			
1889 July 1	B	-0.05	-0.2	The R. A. and Dec. given above are the mean observed place for 1890.0.			
5	E	-.08	+0.1	<i>Circle East.</i>			
7	B	-.06	+1.0	1891 Dec. 11	F	+0.02	0.0
10	E	.00	+0.2	17	F	-.02	+0.2
Mean.....		-0.048	+0.28	18	F	+.03	-0.2
Corr.....			-0.85	23	F	-.01	+0.8
77. π^4 ORIONIS.				Mean		+0.005	+0.20
$\alpha = 4 \ 45 \ 20.823. \quad \delta = 5 \ 24 \ 58.72.$				Corr.....			-0.20
<i>Circle West.</i>				78. π^5 ORIONIS.			
1888 Sept. 23	E	+0.07	+0.7	$\alpha = 4 \ 48 \ 31.294. \quad \delta = 2 \ 15 \ 35.51.$			
Oct. 8	E	.00	0.0	<i>Circle West.</i>			
30	B	+.02	-0.5	1888 Nov. 10	B	+0.01	+0.1
Nov. 2	E	-.03	-0.4	16	B	+.02	+0.2
22	B	+.02	-1.4	19	E	+.01	-1.0
Mean.....		+0.016	-0.32	92 Feb. 5	F	-.06	-0.3
Corr.....			+0.26	Mean		-0.005	-0.25
<i>Circle East.</i>				Corr.....			+0.17
1889 Jan. 22	B	+0.04	-1.5	<i>Circle East.</i>			
23	E	+.02	-0.6	1889 Feb. 1	B	0.00	-1.8
Nov. 17	B	+.02	+1.1	Oct. 29	B	.00	-0.1
Dec. 8	B	.00	+0.1	Nov. 16	B	-.04	+0.1
Mean		+0.020	-0.22	25	B	+.03	+0.8
Corr			-0.34	Dec. 6	B	-.04	0.0
				18	B	-.03	+0.6

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
91 Dec. 10	F	— .03	+0.1	Nov. 22	B	— .13	+0.3
Mean		—0.016	—0.04	91 Dec. 27	F	— .09	—0.5
Corr			—0.21	92 Jan. 21	F	— .05	—0.1
79. ι AURIGAE.				Feb. 14	F	+ .01	—0.5
$\alpha = 4\ 49\ 49.822.$ $\delta = 32\ 59\ 28.23.$				Mean		—0.077	—0.12
Circle West.				Corr			—0.13
1888 Sept. 23	E	—0.06	—0.5	Circle East.			
Oct. 30	B	— .08	—1.1	1889 Nov. 5	B	—0.10	+1.1
Nov. 2	E	— .08	—0.6	9	B	— .13	+0.7
12	E	— .05	+0.6	17	B	— .10	+1.5
16	B	+ .02	—1.8	30	B	— .06	+1.4
22	B	— .08	—1.6	91 Dec. 10	F	+ .04	+0.9
23	B	+ .09	—0.4	11	F	— .08	+2.2
Mean		—0.034	—0.77	17	F	— .15	+1.5
Corr			+0.26	18	F	— .12	+1.9
Circle East.				23	F	— .26	+2.4
1889 Jan. 22	B	—0.07	—1.0	Mean		—0.107	+1.51
23	E	— .08	—0.8	Corr			—0.91
Oct. 20	B	— .03	0.0	80. 10 CAMELOPARDI, S. P.			
Nov. 5 ¹	B	— .03	[+0.2]	Circle West.			
6	B	— .04	—0.4	1888 June 23	B	—0.13	0.0
9	B	— .06	+0.3	Corr			—0.28
30	B	— .05	+0.3	Circle East.			
Dec. 8	B	— .03	+0.1	1889 June 25	B	—0.23	+1.1
Mean		—0.049	—0.21	July 1	B	— .15	+1.5
Corr			—0.81	7	B	— .11	+1.0
¹ Tel. mic. increased 0.1 rev.				10	E	— .11	+0.3
80. 10 CAMELOPARDI.				Mean		—0.150	+0.98
$\alpha = 4\ 53\ 38.084.$ $\delta = 60\ 16\ 49.31.$				Corr			—1.00
Circle West.							
1888 Nov. 2	E	—0.13	+0.2				
19	E	— .07	—0.1				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
81. ϵ AURIGAE.				372. ι TAURI.			
$\alpha = 4 \ 54 \ 4.501. \quad \delta = 43 \ 39 \ 34.88.$				$\alpha = 4 \ 56 \ 31.222. \quad \delta = 21 \ 25 \ 55.60.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Sept. 23	E	-0.04	+0.4	1888 Oct. 8	E	-0.01	-0.4
Oct. 8	E	- .02	-0.6	30	B	.00	-0.7
30	B	.00	0.0	Nov. 2	E	- .02	-0.2
Nov. 10	B	- .03	+0.6	10	B	- .02	-0.3
16	B	- .03	-0.5	12	E	- .02	+0.1
Mean.....		-0.024	-0.02	16	B	+ .09	+0.1
Corr.			+0.06	Mean		+0.003	-0.23
<i>Circle East.</i>				Corr.			+0.43
1889 Jan. 22	B	-0.01	-0.3	<i>Circle East.</i>			
23	E	- .04	-0.4	1889 Jan. 22	B	-0.01	-1.4
Feb. 1	B	- .01	-0.5	23	E	- .01	-0.4
Nov. 15	B	.....	+1.7	Oct. 20	B	+ .03	-0.1
16	B	- .03	+0.8	29	B	+ .07	-0.4
25	B	+ .02	+1.4	Nov. 6	B	+ .05	-0.4
Mean.....		-0.014	+0.45	9	B	- .02	+0.4
Corr.			-0.49	Mean.....		+0.018	-0.33
82. AURIGAE.				Corr.			-0.40
$\alpha = 4 \ 54 \ 47.346. \quad \delta = 40 \ 54 \ 52.35.$				84. β ERIDANI.			
<i>Circle West.</i>				$\alpha = 5 \ 2 \ 26.508. \quad \delta = -5 \ 13 \ 45.07.$			
1888 Nov. 23	B	-0.04	-0.6	<i>Circle West.</i>			
Corr.			+0.28	1889 Sept. 23	E	+0.01	-0.2
<i>Circle East.</i>				Oct. 8	E	+ .02	-0.7
1889 Dec. 6	B	-0.03	+0.5	Nov. 12	E	- .03	+0.1
8	B	- .04	+0.6	21	B	- .04	.....
18	B	.00	+0.4	22	B	+ .03	-1.5
22	B	- .03	+0.6	92 Jan. 9	F	- .11	-0.6
Mean.....		-0.025	+0.52	14	F	.00	-1.4
Corr.			-0.94	21	F	+ .01	-1.1

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Feb. 5	F	+ .05	-0.8	<i>Circle East.</i>			
Mean.....	.....	-0.003	-0.78				
Corr. ....	.....	.....	+0.17				
<i>Circle East.</i>							
1889 Nov. 15	B	.....	+0.5	1889 Jan. 22	B	+0.12	+0.1
16	B	+0.05	-0.4	23	E	+ .09	-0.1
17	B	.00	+0.6	Nov. 9	B	+ .09	+1.1
25	B	+ .10	0.0	30	B	+ 21	+2.5
Dec. 8	B	+ .04	-0.2	Dec. 6	B	+ .34	+1.0
12	B	- .01	-0.5	8	B	+ .16	+1.0
22	B	+ .02	-0.4	Mean .....	.....	+0.168	+0.93
30	B	+ .03	-0.4	Corr.....	.....	.....	-1.10
91 Dec. 10	F	- .03	-0.1	373. 19 H. CAMELOPARDI, S. P.			
11	F	.00	+0.2	<i>Circle West.</i>			
17	F	.00	0.0				
18	F	+ .06	-0.1	1888 May 28	E	+0.19	+1.3
23	F	+ .01	+0.1	June 6	E	+ .08	-0.2
Mean .....	.....	+0.022	-0.05	8	E	+ .06	-0.5
Corr. ....	.....	.....	-0.25	15	B	.....	-0.8
373. 19 H. CAMELOPARDI.				22	E	+ .25	+0.4
$\alpha = 5 \ 4 \ 26.119. \ \delta = 79 \ 6 \ 10.09.$				July 2	B	+ .02	-0.1
<i>Circle West.</i>				Mean .....	.....	+0.120	+0.02
				Corr .....	.....	.....	-0.04
				<i>Circle East.</i>			
1888 Oct. 30	B	+0.23	+0.7				
Nov. 2	E	+ .24	+1.3	1889 June 11	B	+0.18	+1.1
10	B	+ .25	+0.5	16	B	+ .23	+0.8
12	E	+ .09	+1.3	19	E	+ .16	+1.1
16	B	+ .21	+0.1	25	B	+ .20	+1.8
19	E	+ .06	0.0	29	E	+ .12	+1.1
Mean.....	.....	+0.180	+0.65	July 5	E	+ .03	+1.4
Corr .....	.....	.....	-0.20	Mean.....	.....	+0.153	+1.22
				Corr.....	.....	.....	1.10

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
374. μ AURIGAE.				Dec. 6			
$\alpha = 5 \ 5 \ 54.015. \ \delta = 38 \ 21 \ 11.99.$				12			
Circle West.				18			
1888 Oct. 30	B	+0.08	-0.6	22			
Nov. 2	E	+ .01	-0.1	30			
10	B	+ .04	0.0	Mean			
12	E	+ .06	+0.2	Corr.			
16	B	+ .06	-0.3				
19	E	+ .11	-0.9				
Mean.....		+0.060	-0.28				
Corr.			+0.35				
Circle East.				87. β ORIONIS.			
				$\alpha = 5 \ 9 \ 15.057. \ \delta = -8 \ 19 \ 45.76.$			
				Circle West.			
1888 Feb. 5	B	-0.05	.....	1888 Feb. 5			
Oct. 30	B	- .01	-0.8	Oct. 30			
Nov. 12	E	- .01	+0.3	Nov. 12			
92 Jan. 9 ¹	F	[- .13]	-0.1	92 Jan. 9 ¹			
14	F	.00	-0.9	14			
21	F	+ .01	-0.8	21			
Feb. 5	F	+ .08	-0.4	Feb. 5			
Mean.....		+0.003	-0.45	Mean.....			
Corr.....			+0.27	Corr.....			
				¹ Poor seeing.			
				Circle East.			
1889 Jan. 23	E	-0.03	-0.2	1889 Jan. 23			
Nov. 6	B	+ .11	-0.5	Nov. 6			
16	B	+ .09	-0.2	16			
30	B	+ .06	+0.1	30			
91 Dec. 10	F	+ .03	+0.1	91 Dec. 10			
11	F	+ .03	+0.2	11			
17	F	.00	+0.2	17			
18	F	+ .05	-0.1	18			
23	F	- .04	+0.6	23			
Mean		+0.033	+0.02	Mean			
Corr			-0.18	Corr			
86. α AURIGAE.							
$\alpha = 5 \ 8 \ 33.785. \ \delta = 45 \ 53 \ 6.67.$							
Circle West.							
1888 Nov. 21	B	-0.01	-0.4				
23	B	- .08	+0.4				
91 Dec. 27	F	- .11	-0.4				
Mean		-0.067	-0.13				
Corr.			+0.41				
Circle East.							
1889 Oct. 29	B	-0.03	+0.4				
Nov. 15	B	.....	+1.5				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
88. τ ORIONIS.				90. β TAURI.			
$\alpha = 5 \ 12 \ 15.862. \ \delta = -6 \ 57 \ 50.17.$				$\alpha = 5 \ 19 \ 20.283. \ \delta = 28 \ 30 \ 49.47.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Jan. 27	B	-0.01	.....	1888 Oct. 30	B	+0.03	+0.1
Oct. 30	B	+ .07	-1.0	Nov. 21	B	+ .04	.....
Nov. 2	E	- .03	-0.6	92 Feb. 5	F	- .02	-0.9
19	E	+ .05	-0.7	Mean .....	.....	+0.017	-0.40
Mean .....	.....	+0.020	-0.77	Corr. ....	.....	.....	+0.33
Corr. ....	.....	.....	+0.16	<i>Circle East.</i>			
<i>Circle East.</i>				1889 Jan. 22	B	-0.01	-0.7
1889 Jan. 22	B	+0.08	+0.1	Oct. 29	B	- .02	-0.7
Dec. 12	B	+ .03	+0.2	Nov. 17	B	- .04	+1.0
30	B	+ .12	-0.4	30	B	- .02	+0.7
Mean.....	.....	+0.077	-0.03	Dec. 12	B	- .05	+0.3
Corr. ....	.....	.....	-0.13	30	B	- .04	0.0
91. γ ORIONIS.				Mean.....	.....	-0.030	+0.10
$\alpha = 5 \ 19 \ 13.825. \ \delta = 6 \ 14 \ 57.60.$				Corr.....	.....	.....	-0.63
<i>Circle West.</i>				375. 17 CAMELOPARDI.			
$\alpha = 5 \ 19 \ 13.825. \ \delta = 6 \ 14 \ 57.60.$				$\alpha = 5 \ 19 \ 46.875. \ \delta = 62 \ 58 \ 26.82.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Jan. 27	B	+0.11	.....	1888 Nov. 2	E	-0.05	+0.3
Feb. 5	B	- .02	.....	10	B	+ .03	+0.5
Mean.....	.....	+0.045	.....	12	E	+ .03	+0.6
<i>Circle East.</i>				16	B	- .06	+0.5
1889 Nov. 9	B	-0.01	+0.3	19	E	+ .05	+0.2
Dec. 22	B	+ .04	0.0	22	B	.00	+0.2
Mean.....	.....	+0.015	+0.15	Mean .....	.....	0.000	+0.38
Corr. ....	.....	.....	-0.35	Corr. ....	.....	.....	-0.20

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				92. GR. 966. $\alpha = 5 \ 25 \ 1.133. \ \delta = 74 \ 58 \ 9.01.$			
1889 Jan. 23	E	-0.07	+0.1	<i>Circle West.</i>			
Nov. 5	B	- .07	+1.9	1888 Oct. 30	B	+0.01	+1.3
6 ¹	B	+ .14	+0.8	Nov. 19	E	- .10	-0.2
16	B	- .10	+1.9	22	B	+ .01	+0.6
25	B	- .01	+1.4	Mean		-0.027	+0.57
Dec. 8	B	+ .01	+0.8	Corr.			+0.05
18	B	.00	+0.8	<i>Circle East.</i>			
Mean.....		-0.014	+1.10	1889 Oct. 29	B	+0.08	.....
Corr.			-0.83	Nov. 6	B	+ .11	+2.3
¹ n uncertain.				9	B	- .02	+2.4
375. 17 CAMELOPARDI, S. P.				25	B	- .12	+2.5
<i>Circle West.</i>				30	B	- .13	+2.6
1888 May 28	E	0.00	+0.4	Dec. 6	B	.00	+1.7
June 15	B	+ .01	+1.3	12	B	- .11	+2.6
16	E	- .06	+0.3	30	B	- .16	+2.7
23	B	- .03	+0.1	Mean		-0.044	+2.40
30	E	- .01	-0.3	Corr.			-1.07
July 9	E	.00	+1.0	92. GR. 966, S. P.			
10	B	+ .09	+0.9	<i>Circle West.</i>			
Mean		+0.000	+0.53	1888 June 23	B	-0.29	-1.2
Corr.			-0.23	July 10	B	- .07	-0.6
<i>Circle East.</i>				Mean		-0.180	-0.90
1889 June 19	E	-0.12	+0.5	Corr.			+0.08
25	B	- .09	+2.5	<i>Circle East.</i>			
29	E	- .06	+0.4	1889 July 10	E	-0.32	+0.4
July 1	B	- .12	-0.1	23	E	- .29	+0.4
5	E	- .02	+1.2	Mean		-0.305	+0.40
7	B	- .09	+1.7	Corr.			-1.27
Mean.....		-0.083	+1.03				
Corr.			-0.84				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
93. δ ORIONIS. $\alpha = 5 \ 26 \ 23.176. \ \delta = -0 \ 22 \ 52 \ 63.$				<i>Circle East.</i>			
<i>Circle West.</i>				1889 Jan. 22	B	-0.09	-0.5
1888 Nov. 10	B	-0.01	-0.2	23	E	- .06	+0.1
16	B	+ .03	-0.5	Nov. 6	B	+ .09	+0.2
21	B	.00	.....	9	B	+ .03	+0.1
92 Feb. 5	F	+ .05	-0.3	16	B	+ .01	+0.8
Mean.....		+0.018	-0.33	Dec. 6	B	+ .04	+0.4
Corr.....			+0.25	8	B	+ .05	+0.1
<i>Circle East.</i>				Mean		+0.010	+0.17
1889 Jan. 22	B	+0.07	-0.8	Corr.			-0.50
23	E	+ .04	-0.5	96. ι ORIONIS. $\alpha = 5 \ 30 \ 3.123. \ \delta = -5 \ 58 \ 57.79.$			
Nov. 5	B	+ .01	0.0	<i>Circle East.</i>			
Dec. 22	B	+ .01	+0.6	1889 Nov. 17	B	0.00	+0.6
Mean.....		+0.032	-0.18	25	B	+ .03	+0.1
Corr			-0.23	Mean		+0.015	+0.35
556. α LEPORIS. $\alpha = 5 \ 27 \ 52.696. \ \delta = -17 \ 54 \ 5.96.$				Corr			-0.18
<i>Circle West.</i>				97. ϵ ORIONIS. $\alpha = 5 \ 30 \ 37.859. \ \delta = -1 \ 16 \ 22.01.$			
1888 Jan. 27	B	+0.17	.....	<i>Circle West.</i>			
376. φ^1 ORIONIS. $\alpha = 5 \ 28 \ 46.875. \ \delta = 9 \ 24 \ 51.59.$				1888 Feb. 5	B	-0.02	.....
<i>Circle West.</i>				92 Feb. 5	F	+ .07	-1.2
1888 Nov. 2	E	-0.05	-0.3	Mean		+0.025	-1.20
10	B	- .07	+0.3	Corr			+0.26
12	E	- .09	+0.3	<i>Circle East.</i>			
16	B	+ .06	+0.2	1889 Nov. 30	B	+0.04	-0.2
19	E	- .02	-0.9	Dec. 12	B	+ .06	-0.4
22	B	- .08	-1.4	30	B	+ .03	-0.5
Mean		-0.042	-0.30	Mean.....		+0.043	-0.37
Corr			+0.59	Corr.			-0.28

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$Dec.$ "
98. ζ TAURI.				Nov. 6	B	+ .15	+1.7
$\alpha = 5 \ 31 \ 4.230. \ \delta = 21 \ 4 \ 28.86.$				9	B	+ .06	+2.3
<i>Circle West.</i>				17	B	- .02	+2.7
1888 Nov. 21	B	0.00	.....	30	B	+ .07	+2.2
Dec. 3	B	- .03	-0.7	Dec. 18	B	- .03	+1.6
Mean		-0.015	-0.70	22	B	.00	+1.8
Corr			+0.45	Mean		+0.040	+1.88
<i>Circle East.</i>				Corr			-1.15
1889 Nov. 5	B	0.00	+0.8	378. 130 TAURI.			
16	B	- .06	+0.9	$\alpha = 5 \ 41 \ 1.334. \ \delta = 17 \ 41 \ 14.31.$			
Dec. 6	B	- .02	-0.2	<i>Circle West.</i>			
18	B	- .01	-0.3	1888 Nov. 2	E	+0.08	-1.2
22	B	.00	+0.2	10	B	+ .10	-2.3
Mean		-0.018	+0.28	12	E	+ .08	-1.3
Corr			-0.42	19	E	+ .09	-1.9
377. σ AURIGAE.				22	B	+ .05	-2.9
$\alpha = 5 \ 37 \ 22.700. \ \delta = 49 \ 46 \ 37.38.$				23	B	+ .08	-2.0
<i>Circle West.</i>				Mean		+0.080	-1.93
1888 Jan. 27	B	[-0.13]	.....	Corr			+0.83
Feb. 7	B	.....	[-1.9]	<i>Circle East.</i>			
Nov. 2	E	+ .06	+1.4	1889 Jan. 22	B	+0.04	-1.4
10	B	+ .08	0.0	23	E	+ .06	-1.3
12	E	+ .02	+1.3	Nov. 17	B	+ .03	+0.1
16	B	+ .14	+0.5	25	B	+ .03	-0.1
19	E	+ .04	+0.4	Dec. 6	B	+ .01	-0.6
22	B	+ .02	+0.8	8	B	+ .01	-0.3
Mean		+0.060	+0.73	Mean		+0.030	-0.60
Corr			+0.03	Corr			-0.46
<i>Circle East.</i>							
1889 Jan. 22	B	+0.06	+0.9				
Nov. 5	B	+ .03	+1.8				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
100. κ ORIONIS.				102. α ORIONIS.			
$\alpha = 5 \ 42 \ 32.323. \ \delta = -9 \ 42 \ 33.46.$				$\alpha = 5 \ 49 \ 12.966. \ \delta = 7 \ 23 \ 9.34.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Nov. 16	B	+0.08	-0.5	1888 Nov. 19	E	-0.03	-1.6
30	E	+ .03	-0.9	30	E	+ .05	-1.8
Dec. 3	B	+ .01	-1.9	Dec. 3	B	- .02	-1.6
92 Feb. 5	F	+ .04	-0.9	92 Feb. 5	F	+ .04	-1.6
Mean.....		+0.040	-1.05	9	F	+ .08	-1.6
Corr.....			+0.31	16	F	- .04	-1.5
<i>Circle East.</i>				Mean.....		+0.013	-1.62
1889 Dec. 12	B	+0.07	+0.2	Corr.....			+0.59
18	B	+ .11	+0.2	<i>Circle East.</i>			
Mean.....		+0.090	+0.20	1889 Jan. 22	B	-0.05	-1.4
Corr.....			-0.35	Dec. 8	B	.00	-0.7
101. ν AURIGAE.				18	B	+ .04	-0.7
$\alpha = 5 \ 43 \ 51.882. \ \delta = 39 \ 6 \ 55.51.$				22	B	.00	-0.9
<i>Circle West.</i>				30	B	- .01	-0.4
1888 Dec. 3	B	+0.08	-0.6	Mean.....		-0.004	-0.82
Corr.....			+0.23	Corr.....			-0.36
<i>Circle East.</i>				379. δ AURIGAE.			
1889 Nov. 17	B	+0.03	+1.2	$\alpha = 5 \ 50 \ 28.161. \ \delta = 54 \ 16 \ 30.81.$			
Dec. 6	B	+ .08	+0.3	<i>Circle West.</i>			
22	B	+ .02	+0.6	1888 Feb. 5	B	+0.04	.....
30	B	+ .06	+0.6	Nov. 2	E	+ .07	+1.1
Mean.....		+0.048	+0.68	10	B	+ .04	-0.4
Corr.....			-0.90	12	E	+ .14	+0.6
559. δ LEPORIS.				19	E	+ .11	-1.2
$\alpha = 5 \ 46 \ 35.459. \ \delta = -20 \ 53 \ 21.37.$				22	B	+ .04	-0.4
<i>Circle West.</i>				23	B	+ .01	0.0
1888 Feb. 7	B	.....	-0.8	Mean.....		+0.064	-0.05
Corr.....			+0.55	Corr.....			+0.16

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				104. γ AURIGAE.			
				$\alpha = 5 \ 52 \ 13.241. \ \delta = 37 \ 12 \ 14.76.$			
				<i>Circle West.</i>			
1889 Jan. 22	B	+0.02	-0.1	1888 Nov. 10	B	-0.03	-1.2
23	E	+ .05	-0.5	16	B	+ .01	-0.6
Nov. 9	B	+ .04	+1.2	22	B	- .07	-1.3
16	B	+ .01	+1.9	30	E	- .04	-1.1
17	B	.00	+1.4	Dec. 3	B	- .03	-1.2
Dec. 6	B	+ .02	+0.6	8	B	+ .04	-1.3
Mean.....		+0.023	+0.75	Mean.....		-0.020	-1.12
Corr.....			-0.73	Corr.			+0.54
103. β AURIGAE.				<i>Circle East.</i>			
$\alpha = 5 \ 51 \ 27.599. \ \delta = 44 \ 56 \ 7.17.$							
<i>Circle West.</i>							
1888 Jan. 27	B	[-0.11]	.....	1889 Nov. 17	B	-0.07	+0.5
Nov. 12	E	.00	+0.5	Dec. 22	B	- .07	+0.7
16	B	- .01	+0.5	30	B	- .09	0.0
92 Feb. 5	F	+ .03	-0.5	Mean.....		-0.077	+0.40
9	F	+ .01	+0.4	Corr.			-0.61
16	F	.00	.....	380. 66 ORIONIS.			
Mean		+0.006	+0.22	$\alpha = 5 \ 59 \ 9.670. \ \delta = 4 \ 9 \ 51.11.$			
Corr.			+0.34	<i>Circle West.</i>			
<i>Circle East.</i>							
1889 Nov. 9	B	-0.05	+1.3	1888 Jan. 27	B	+0.07	.....
25	B	- .04	+0.9	Feb. 7	B	.....	-0.5
Dec. 8	B	- .01	+0.3	Nov. 2	E	- .05	-0.2
12	B	- .04	+1.3	10	B	- .02	-0.5
18	B	- .05	+0.5	12	E	- .04	-0.1
Mean		-0.038	+0.86	16	B	.00	+0.2
Corr.			-0.80	19	E	- .07	-1.0
				22	B	- .05	-1.1
				Mean.....		-0.023	-0.46
				Corr.....			+0.15

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				381. 36 CAMELOPARDI.			
1889 Jan. 22	B	+0.03	-1.5	$\alpha = 6 \ 1 \ 46.876. \quad \delta = 65 \ 44 \ 20.05.$			
23	E	- .02	-1.4	<i>Circle West.</i>			
Nov. 5	E	+ .05	-0.1	1888 Nov. 10	B	+0.04	-0.6
9	B	- .03	+0.3	12	E	+ .10	+0.7
16	B	- .01	+0.9	16	B	+ .01	+0.2
Dec. 6	B	- .03	-0.1	19	E	+ .27	-0.5
12	B	- .10	+0.2	22	B	+ .25	+0.3
Mean		-0.016	-0.24	30	B	+ .28	+1.2
Corr			-0.28	Mean		+0.158	+0.22
382. ν ORIONIS.				Corr			-0.08
$\alpha = 6 \ 1 \ 17.480. \quad \delta = 14 \ 16 \ 51.40.$				<i>Circle East.</i>			
<i>Circle West.</i>				1889 Jan. 23	E	+0.19	+0.7
1888 Feb. 5	B	+0.01	.....	Nov. 6	B	[+ .52]	+1.1
Nov. 2	E	- .05	-0.7	17	B	+ .20	+1.4
10	B	- .05	-0.8	25	B	+ .14	+1.0
12	E	- .03	-0.9	30	B	+ .18	+1.7
19	E	- .01	-1.3	Dec. 8	B	+ .16	+1.1
22	B	+ .03	-1.8	18	B	+ .21	+1.4
23	B	- .02	-0.8	Mean		+0.180	+1.20
Mean		-0.017	-1.05	Corr			-1.01
Corr			+0.57	381. 36 CAMELOPARDI, S. P.			
<i>Circle East.</i>				<i>Circle West.</i>			
1889 Jan. 22	B	+0.02	-1.0	1888 June 16	E	+ .14	-0.2
23	E	+ .05	-0.2	23	B	+ .05	-0.7
Nov. 5	B	+ .07	+0.1	July 2	B	+ .21	+0.7
9	B	- .07	+0.2	9	E	+ .07	+1.2
16	B	+ .01	+0.8	11	E	+ .20	-0.4
Dec. 6	B	- .03	+0.1	Mean		+0.134	+0.12
12	B	- .04	-0.1	Corr			-0.26
Mean		+0.001	-0.01				
Corr			-0.72				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
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<i>Circle East.</i>				383. 22 H. CAMELOPARDI, S. P.			
				<i>Circle West.</i>			
1889 June 19	E	+0.11	-1.4	1888 July 2	B	-0.06	-0.5
25	B	+ .12	+1.0	9	E	- .05	+0.8
29	E	+ .04	+0.3	10 ¹	B	+ .05	[+0.4]
July 1	B	+ .16	-0.1	11	E	+ .06	+0.6
5	E	+ .11	+0.5	15	B	- .10	+0.1
7	B	+ .19	+0.9	17	E	+ .11	+1.0
Mean		+0.122	+0.20	Mean.....		+0.002	+0.40
Corr			-0.86	Corr.....			-0.10

383. 22 H. CAMELOPARDI.				¹ Tel. mic. increased 0.2 rev.			
$\alpha = 6 \ 6 \ 43.426. \ \delta = 69 \ 21 \ 26.05.$				<i>Circle East.</i>			
<i>Circle West.</i>							
1888 Nov. 2	E	-0.16	+0.5	1889 June 25	B	+0 08	+1.9
10	B	+ .06	-0.7	29	E	- .07	+1.2
12	E	+ .08	+0.7	July 1	B	+ .03	+ 0 .7
19	E	+ .12	-0.3	5	E	+ .10	+0.9
22	B	+ .11	+0.3	7	B	+ .08	+0.8
23	B	+ .04	+0.4	10	E	+ .01	+1.2
Mean.....		+0.042	+0.15	Mean		+0.038	+1.12
Corr			+0.14	Corr.			-0.90

<i>Circle East.</i>				384. 2 LYNXIS.			
				$\alpha = 6 \ 9 \ 55.084. \ \delta = 59 \ 2 \ 58.93.$			
				<i>Circle West.</i>			
1889 Jan. 22	B	+0.03	+1.0	1888 Nov. 10	B	- .10	-0.3
23	E	+ .06	-0.3	12	E	- .03	+0.2
Nov. 5	B	.....	+1.2	19	E	+ .08	-0.8
9 ¹	B	+ .04	[+2.0]	23	B	+ .04	+0.6
16	B	+ .06	+2.2	30	E	+ .17	-0.1
17	B	- .05	+1.5	Dec. 3	B	+ .04	-0.3
25	B	- .01	+1.6	Mean		+0.033	-0.12
30	B	+ .11	+2.0	Corr.			-0.10
Mean.....		+0.034	+1.31				
Corr			-1.44				

¹ Tel. mic. diminished 0.1 rev.			
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Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				385. ψ^1 AURIGAE. $\alpha = 6 \ 16 \ 25.610. \ \delta = 49 \ 20 \ 35.12.$			
1889 Dec. 6	B	0.00	+0.9	<i>Circle West.</i>			
8	B	— .03	+0.5	1888 Nov. 2	E	0.00	+0.4
12	B	— .06	+0.6	10	B	— .03	—0.8
18	B	— .05	+0.4	12	E	— .06	+0.3
22	B	+ .01	+0.5	22	B	— .01	+0.8
30	B	— .12	+1.3	23	B	— .04	+0.8
Mean		—0.042	+0.70	30	E	+ .01	+0.4
Corr			—0.85	Mean		—0.022	+0.32
106. μ GEMINORUM. $\alpha = 6 \ 16 \ 18.347. \ \delta = 22 \ 34 \ 9.81.$				Corr			+0.03
<i>Circle West.</i>				<i>Circle East.</i>			
1888 Nov. 16	B	—0.03	+0.3	1889 Jan. 23	E	—0.04	—0.5
Dec. 8	B	— .01	—0.9	Nov. 16	B	— .02	+1.7
92 Feb. 5	F	— .07	—1.5	Dec. 6	B	— .03	+1.3
9	F	— .05	0.0	8	B	— .02	+1.1
16	F	+ .02	—1.0	12	B	— .06	+1.3
Mean		—0.028	—0.62	22	B	— .06	+0.7
Corr			+0.34	Mean		—0.038	+0.93
<i>Circle East.</i>				Corr			—1.13
1889 Jan. 22	B	—0.01	[+4.3]	386. 8 MONOCEROTIS. $\alpha = 6 \ 17 \ 56.380. \ \delta = 4 \ 38 \ 52.88.$			
Nov. 17	B	— .05	—0.5	<i>Circle West.</i>			
25	B	— .07	.....	1888 Nov. 10	B	—0.03	—0.9
30	B	— .03	—0.3	12	E	— .04	0.0
Dec. 18	B	— .05	—0.6	22	B	— .01	—0.4
90 Mar. 12	B	— .06	.....	30	E	— .06	—0.6
15	B	— .01	.....	Dec. 3	B	— .03	—0.3
Mean		—0.040	—0.47	8	B	— .03	—0.2
Corr			—0.36	Mean		—0.033	—0.40
				Corr			+0.18

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				387. 23 H. CAMELOPARDI, S. P.			
				<i>Circle West.</i>			
1889 Jan. 22	B	+ .03	-0.4	1888 June 16	E	-0.17	+0.6
23	E	.00	-0.4	23	B	- .20	-1.1
Nov. 9	B	.00	+0.4	July 10	B	+ .05	-0.1
17	B	- .01	+0.4	11	E	+ .01	-1.9
Dec. 8	B	- .04	+0.1	17	E	- .21	+0.6
12	B	- .04	+0.3	Mean		-0.104	-0.38
Mean		-0.010	+0.07	Corr			-0.03
Corr			-0.31	<i>Circle East.</i>			
387. 23 H. CAMELOPARDI.				1889 June 19	E	- .04	-0.7
$\alpha = 6 \ 27 \ 27.042. \ \delta = 79 \ 40 \ 52.39.$				25	B	- .14	+0.7
<i>Circle West.</i>				29	E	- .32	-0.1
1888 Feb. 7	B	.....	-0.1	July 1	B	- .15	+0.6
Nov. 2	E	-0.11	+1.4	7	B	- .06	+1.1
10	B	- .03	-1.0	10	E	- .01	+0.3
12	E	- .03	+1.5	Mean		-0.120	+0.32
19	E	+ .10	+0.8	Corr			-1.09
22	B	+ .18	+1.0	388. 8 LYNXIS.			
23	B	+ .04	+1.7	$\alpha = 6 \ 27 \ 38.155. \ \delta = 61 \ 34 \ 36.56.$			
Mean		+0.025	+0.76	<i>Circle West.</i>			
Corr			-0.21	1888 Nov. 12	E	+0.06	-0.1
<i>Circle East.</i>				19	E	+ .18	-0.8
1889 Jan. 23	E	- .04	+0.2	22	B	+ .11	-0.4
Nov. 9	B	- .17	+1.6	30	E	+ .04	-0.8
16	B	+ .06	+2.4	Dec. 3	B	+ .10	-0.2
17	B	- .12	+2.4	Mean		+0.098	-0.46
Dec. 6	B	.00	+2.1	Corr			-0.11
18	B	- .11	+1.4	<i>Circle East.</i>			
Mean		-0.063	+1.68	1889 Jan. 22	B	.....	+0.1
Corr			-1.00	23	E	+ .03	-0.4

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Nov. 25	B	.00	+0.5	Nov. 19	E	+ .01	-0.7
30	B	+ .05	+0.3	22	B	- .01	-0.7
Dec. *8	B	+ .02	-0.3	23	B	- .01	+0.2
12	B	+ .08	+0.2	30	E	+ .04	-0.6
22	B	+ .03	0.0	Mean		+0.022	-0.52
Mean		+0.035	+0.06	Corr			+0.18
Corr			-0.83				

388. 8 LYNXIS, S. P.

Circle West.

1888 July 2	B	+0.09	+0.6
15	B	+ .12	+0.7
18	B	+ .11	+1.4
20	B	+ .09	+2.2
24	B	+ .11	+0.1
26	E	+ .04	-1.2
Mean		+0.093	+0.63
Corr			-0.20

Circle East.

1889 June 19	E	-0.01	+1.0
July 1	B	+ .08	+1.0
5	E	- .02	+2.3
7	B	+ .17	+1.6
10	E	.00	+1.6
23	E	- .10	+0.5
Mean		+0.020	+1.33
Corr			-1.02

389. 51 AURIGAE.

 $\alpha = 6 \ 31 \ 2.181. \ \delta = 39 \ 29 \ 12.93.$ *Circle West.*

1888 Nov. 10	B	+0.04	-1.2
12	E	+ .06	-0.1

Circle East.

1889 Jan. 23	E	-0.02	-0.3
Nov. 9	B	- .01	+1.7
16	B	+ .01	+1.5
Dec. 8	B	- .02	+1.1
12	B	- .02	+0.9
18	B	[- .19]	+1.0
Mean		-0.012	+0.98
Corr			-0.93

107. γ GEMINORUM. $\alpha = 6 \ 31 \ 21.441. \ \delta = 16 \ 29 \ 32.87.$ *Circle West.*

1888 Feb. 7	B	.....	-2.3
Nov. 2	E	-0.04	-1.0
Dec. 3	B	- .04	-0.9
8	B	- .01	-1.8
92 Feb. 9	F	- .02	-0.7
16	F	- .01	-1.2
Mean.....		-0.024	-1.32
Corr			+0.85

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				<i>Circle East.</i>			
1889 Jan. 22	B	+0.02	-0.2	Dec. 8	B	.00	-1.3
Nov. 17	B	+ .01	+0.7	10	E	+ .06	-1.1
25	B	- .02	+1.2	19	B	+ .03	-1.1
30	B	- .03	-0.3	Mean.....		+0.026	-1.20
Dec. 6	B	- .01	-0.2	Corr.....			+0.31
22	B	- .03	0.0	<i>Circle East.</i>			
30	B	- .04	+0.9	1889 Jan. 22	B	-0.01	-0.2
Mean		-0.014	+0.30	Nov. 25	B	- .01	.....
Corr			-0.77	Dec. 22	B	+ .01	-1.2
108. <i>S MONOCEROTIS.</i>				90 Mar. 15	B	+ .02	-0.6
$\alpha = 6 \ 34 \ 55.216. \ \delta = 9 \ 59 \ 48.44.$				Mean		+0.002	-0.67
<i>Circle West.</i>				Corr.....			-0.45
1888 Nov. 2	E	-0.01	-0.5	390. ψ^5 AURIGAE.			
10	B	+ .03	-1.6	$\alpha = 6 \ 38 \ 48.570. \ \delta = 43 \ 41 \ 9.73.$			
Dec. 8	B	.00	-1.1	<i>Circle West.</i>			
10	E	- .04	-1.6	1888 Nov. 12	E	+0.09	+0.1
92 Feb. 9	F	+ .03	-0.3	19	E	+ .09	-0.7
16	F	+ .01	-1.2	22	B	+ .10	-0.4
Mean		+0.003	-1.05	23	B	+ .06	+0.3
Corr.....			+0.52	30	E	+ .12	+0.1
<i>Circle East.</i>				Dec. 3	B	+ .07	+0.3
1889 Dec. 8	B	0.00	-0.1	Mean.....		+0.088	-0.05
90 Mar. 12	B	- .01	+0.1	Corr.....			+0.08
Mean		-0.005	0.00	<i>Circle East.</i>			
Corr.....			-0.58	1889 Jan. 23	E	+0.04	-0.3
109. ϵ GEMINORUM.				Nov. 16	B	+ .13	+0.8
$\alpha = 6 \ 37 \ 9.847. \ \delta = 25 \ 14 \ 21.60.$				Dec. 6	B	+ .09	+0.4
<i>Circle West.</i>				8	B	+ .06	+0.4
1888 Nov. 2	E	+0.04	-0.8	18	B	+ .11	-0.2
10	B	.00	-1.7	30	B	+ .05	+0.9
				Mean.....		+0.080	+0.33
				Corr.....			-0.50

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
110. ξ GEMINORUM. $\alpha = 6 \ 39 \ 6.926.$ $\delta = 13 \ 0 \ 48.47.$				<i>Circle East.</i>			
<i>Circle West.</i>				1889 Jan. 23	E	-0.10	-0.7
1888 Nov. 2	E	+0.02	-0.4	Dec. 6	B	- .03	+1.0
10	B	+ .01	-1.8	8	B	- .16	+0.2
Dec. 11	B	- .02	.....	22	B	- .04	+1.9
92 Feb. 9	F	+ .02	-0.4	90 Mar. 12	B	+ .06	+0.9
16	F	+ .03	-0.3	15	B	- .11	0.0
Mean.....		+0.012	-0.72	Mean.....		-0.063	+0.55
Corr.			+0.50	Corr.....			-1.45
<i>Circle East.</i>				391. 43 CAMELOPARDI, S. P.			
1889 Jan. 22	B	+0.06	.....	<i>Circle West.</i>			
Nov. 9	B	+ .03	+0.6	1888 June 23	B	-0.09	+0.4
17	B	+ .04	.....	July 2	B	- .03	+1.5
30	B	+ .02	.....	9	E	- .12	+1.6
Dec. 12	B	+ .01	+0.2	10	B	+ .05	+2.0
90 Mar. 12	B	+ .02	+0.5	11	E	- .02	+0.9
15	B	+ .02	+0.9	15	B	+ .01	+1.5
Mean.....		+0.029	+0.55	Mean.....		-0.033	+1.32
Corr.....			-0.65	Corr.....			-0.09
391. 43 CAMELOPARDI. $\alpha = 6 \ 41 \ 50.485.$ $\delta = 69 \ 0 \ 54.46.$				<i>Circle East.</i>			
<i>Circle West.</i>				1889 June 19	E	-0.23	+1.9
1888 Nov. 10	B	-0.26	-2.7	25	B	- .02	+2.7
12	E	- .03	-0.8	29	E	- .24	+0.9
22	B	+ .04	-0.9	July 1	B	- .07	+1.7
23	B	+ .09	-0.5	7	B	- .07	+2.1
30	E	.00	-1.4	10	E	- .12	+1.0
Dec. 10	E	- .06	-1.8	Mean.....		-0.125	+1.72
Mean.....		-0.037	-1.35	Corr.....			-0.88
Corr.....			+0.06				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
392. 18 MONOCEROTIS. $\alpha = 6 \ 42 \ 7.514. \ \delta = 2 \ 31 \ 54.51.$ <i>Circle West.</i>				Dec. 11	B	— .20	+1.0
1888 Nov. 19	E	0.00	—1.1	19	B	— .01	+0.5
Dec. 3	B	.00	+0.4	Mean		—0.057	+0.69
8	B	— .01	0.0	Corr			—0.10
10	E	— .01	—0.6	<i>Circle East.</i>			
19	B	— .01	+0.3	1889 Jan. 23	E	—0.08	+0.3
92 Feb. 5	F	— .07	—0.5	Dec. 6	B	+ .02	+1.5
9	F	+ .02	0.0	8	B	— .13	+1.0
16	F	+ .07	+0.2	22	B	— .16	+1.3
Mean		—0.001	—0.16	90 Mar. 12	B	+ .23	+1.9
Corr			+0.16	15	B	— .19	+1.0
<i>Circle East.</i>				Mean		—0.052	+1.17
1889 Jan. 22	B	+0.01	—0.5	Corr			—1.17
Nov. 9	B	— .01	+0.6	393. 24 H. CAMELOPARDI, S. P.			
16	B	— .02	0.0	<i>Circle West.</i>			
30	B	— .01	+0.1	1888 June 16	E	—0.16	—0.2
Dec. 12	B	+ .02	0.0	23	B	— .13	—0.9
18	B	— .01	+0.2	July 2	E	.....	+0.3
30	B	— .01	+0.8	9	E	— .18	.....
Mean		—0.004	+0.17	10	B	+ .08	+1.9
Corr			—0.20	11	E	— .07	—0.3
393. 24 H. CAMELOPARDI. $\alpha = 6 \ 44 \ 0.966. \ \delta = 77 \ 6 \ 56.48.$ <i>Circle West.</i>				15	B	— .29	—0.4
1888 Nov. 12	E	—0.13	+0.7	18	B	— .02	0.0
19	E	— .03	+0.1	Mean		—0.110	+0.06
23	B	.....	+0.8	Corr			—0.05
30	E	— .02	+0.7	<i>Circle East.</i>			
Dec. 3	B	+ .06	+1.5	1889 June 19	E	—0.20	+1.2
8	B	— .07	+0.2	25	B	— .07	+1.3
				29	E	— .21	+1.3
				July 1	B	— .09	+1.1
				5	E	— .18	+1.4

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
July 7	B	.00	+2.0	<i>Circle East.</i>			
Mean.....		-0.125	+1.38	1889 Jan. 23	E	+0.06	-0.2
Corr.....			-1.13	Nov. 9	B	- .01	+0.3
112. γ GEMINORUM.				17	B	- .06	+0.8
$\alpha = 6 \ 45 \ 32.361.$			$\delta = 34 \ 5 \ 35.55.$	Dec. 6	B	- .01	+0.6
<i>Circle West.</i>				8	B	- .01	+0.7
1888 Feb. 7	B	.....	-3.0	Mean.....		-0.006	+0.44
Nov. 2	E	-0.01	-1.1	Corr.....			-0.86
92 Feb. 5	F	- .04	-2.0	111. 51 H. CEPHEI.			
9	F	- .03	-1.6	$\alpha = 6 \ 48 \ 46.837.$		$\delta = 87 \ 13 \ 5.15.$	
Mean		-0.027	-1.92	<i>Circle West.</i>			
Corr.			+0.42	1888 Nov. 2	E	-0.58	+0.9
<i>Circle East.</i>				10	B	-0.12	-0.7
1889 Jan. 22	B	-0.03	-0.6	12	E	-0.46	+0.5
Nov. 16	B	- .02	+0.2	19	E	-0.40	+0.4
Dec. 12	B	- .04	+0.2	22	B	-1.00	+0.4
18	B	- .04	+0.5	23	B	.....	+0.6
30	B	- .08	+0.2	30	E	-0.68	+0.7
Mean		-0.042	+0.10	Dec. 3	B	-0.75	+0.8
Corr.			-0.77	8	B	-1.19	+0.6
394. 15 LYNCS.				10	E	-0.07	+0.4
$\alpha = 6 \ 47 \ 45.075.$			$\delta = 58 \ 33 \ 57.43.$	11	B	-0.05	+0.8
<i>Circle West.</i>				19	B	+0.03	+0.7
1888 Nov. 10	B	-0.10	-0.7	92 Feb. 5	F	-0.14	+0.8
12	E	- .06	+0.4	9	F	+0.26	.....
19	E	- .03	-0.8	16	F	+0.41	+0.8
22	B	- .14	-0.4	Mean		-0.339	+0.55
23	B	.....	+0.9	Corr.....			-0.31
30	E	.00	0.0				
Dec. 3	B	- .07	+0.4				
Mean		-0.067	-0.03				
Corr.....			-0.05				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>							
1889 Jan. 22	B	-0.10	+0.9	91 Sept. 16	F	+0.32	+0.5
23	E	-0.50	-0.2	19	F	+0.19	.....
Nov. 9	B	+0.02	+1.0	21	F	+0.44	.....
16	B	-0.20	+1.1	22	F	+0.39	.....
17	B	-0.38	+1.3	Mean		-0.299	+0.34
30	B	-0.48	+1.3	Corr.			-0.40
Dec. 6	B	-0.15	+1.0	<i>Circle East.</i>			
8	B	-0.13	+1.1	1889 June 19	E	-0.26	+0.6
12	B	+0.07	+1.0	25	B	-0.22	+1.4
18	B	-0.23	+1.1	29	E	-0.40	-0.1
22	B	-0.68	+1.0	July 1	B	-0.43	+1.5
30	B	-0.74	+1.3	5	E	-0.53	+0.5
90 Mar. 12	B	+0.39	+0.8	7	B	-0.34	+1.1
15	B	-0.36	+0.6	10	E	-0.46	+0.9
Mean.....		-0.248	+0.95	91 Sept. 23	F	+0.78	.....
Corr.			-0.82	25	F	+0.27	.....
				26	F	+0.04	.....
				Mean		-0.155	+0.84
				Corr.			-0.72

111. 51 H. CEPHEI, S. P.

Circle West.

1888 June 16	E	-0.96	0.0
23	B	-0.34	-0.4
July 2	B	-0.40	+0.2
10	B	-0.04	+1.0
11	E	-0.46	-0.6
15	B	-0.79	+0.4
17	E	-0.46	+1.8
18	B	-0.20	+0.4
20	B	-0.60	+0.8
21	E	-0.86	+0.1
24	B	-0.68	0.0
26	E	-0.44	+0.2
27	B	-0.19	.....

566. ϵ CANIS MAJORIS. $\alpha = 6 \ 54 \ 18.137. \ \delta = -28 \ 49 \ 22.58.$ *Circle West.*

1892 Feb. 5	F	-0.06	-1.0
9	F	.....	-0.4
16	F	+ .07	+0.6
Mean.....		+0.005	-0.27
Corr.			+0.32

113. ζ GEMINORUM. $\alpha = 6 \ 57 \ 35.094. \ \delta = 20 \ 43 \ 51.58.$ *Circle West.*

1888 Nov. 2	E	+0.02	-0.8
10	B	- .02	-1.6

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Nov. 12	E	— .03	—0.5
19	E	— .02	—1.0
22	B	— .01	—1.5
23	B	— .03	—0.5
30	E	— .02	0.0
Dec. 3	B	.00	—0.3
10	E	— .02	—1.6
11	B	+ .02	—1.2
92 Feb. 5	F	— .06	.....
9	F	— .03	—0.8
Mean		—0.017	—0.89
Corr			+0.44

Circle East.

1889 Jan. 22	B	—0.01	—0.4
23	E	— .04	—0.7
Nov. 30	E	— .06	—0.5
Dec. 6	B	+ .02	—0.4
18	B	— .02	—0.2
22	B	— .02	—0.2
90 Mar. 12	B	— .02	0.0
Mean.....		—0.021	—0.34
Corr			—0.44

568. δ CANIS MAJORIS. $\alpha = 7 \ 3 \ 55.108. \ \delta = -26 \ 13 \ 9.07.$ *Circle West.*

1892 Feb. 5 ¹	F	—0.09	.....
9	F	— .02	—0.2
16	F	+ .07	+0.7
Mean		—0.013	+0.25
Corr			+0.25

¹ Dec. observed, but in error over 2'; not reducible on any simple assumption.

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
395. 63 AURIGAE.			
$\alpha = 7 \ 4 \ 5.351. \ \delta = 39 \ 29 \ 57.47.$			
<i>Circle West.</i>			
1888 Nov. 10	B	+0.01	—1.2
12	E	— .01	—0.4
19	E	— .01	—1.1
22	B	— .05	—1.3
23	B	+ .01	—0.3
30	E	— .02	—0.9
Mean		—0.012	—0.87
Corr			+0.18

Circle East.

1889 Jan. 23	E	—0.10	—0.8
Nov. 9	B	— .09	+0.6
16	B	+ .03	+0.4
Dec. 6	B	— .03	—0.2
8	B	— .04	0.0
18	B	— .02	—0.7
Mean.....		—0.042	—0.12
Corr			—0.93

396. 64 AURIGAE.

 $\alpha = 7 \ 10 \ 23.328. \ \delta = 41 \ 4 \ 40.45.$ *Circle West.*

1888 Nov. 10	B	—0.10	—1.1
12	E	— .05	—0.4
19	E	— .04	—1.1
22	B	— .06	—0.7
23	B	— .09	+0.1
30	E	— .04	—0.4
Mean.....		—0.063	—0.60
Corr			+0.28

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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<i>Circle East.</i>				115. δ GEMINORUM.			
1889 Nov. 9	B	-0.08	+1.1	$\alpha = 7 \ 13 \ 33.197. \ \delta = 22 \ 11 \ 3.41.$			
16 ¹	B	-.03	+0.2	<i>Circle West.</i>			
Dec. 6	B	-.16	+1.0	1888 Nov. 23	B	+0.07	-1.2
22	B	-.09	+0.5	Dec. 19	B	-.03	-0.8
30	B	-.08	+0.6	92 Feb. 5	F	-.05	-1.9
Mean		-0.088	+0.68	16	F	.00	.....
Corr.			-0.92	Mean.....		-0.002	-1.30
¹ Microscope IV. increased 5".				Corr.			+0.39

114. λ GEMINORUM.				<i>Circle East.</i>			
$\alpha = 7 \ 11 \ 46.282. \ \delta = 16 \ 44 \ 17.62.$				1889 Jan. 23	E	+0.04	-1.0
<i>Circle West.</i>				Nov. 9	B	-.01	-0.1
1888 Nov. 10	B	0.00	-2.1	16	B	+.02	-1.1
12	E	-.02	-1.0	Dec. 6	B	-.02	0.0
19	E	.00	-1.7	22	B	+.02	-0.7
22	B	-.02	-2.0	30	B	.00	-0.5
Dec. 11	B	+.03	-1.5	Mean		+0.008	-0.57
19	B	+.02	-1.2	Corr.			-0.37
92 Feb. 9	F	.....	-1.8	397. 19 LYNCEIS seq.			
16	F	-.01	-1.8	$\alpha = 7 \ 13 \ 53.407. \ \delta = 55 \ 29 \ 15.89.$			
Mean		0.000	-1.65	<i>Circle West.</i>			
Corr.			+0.87	1888 Nov. 10	B	+0.05	-0.9

<i>Circle East.</i>				12	E	+.09	+0.6
1889 Jan. 23	E	+0.02	-1.2	19	E	+.06	-0.2
Nov. 16	B	.00	0.0	22	B	+.12	+0.4
Dec. 8	B	+.01	-0.1	30	E	+.08	0.0
12	B	+.01	+0.4	Dec. 3	B	+.10	+0.7
18	B	+.02	.....	Mean.....		+0.083	+0.10
90 Mar. 12	B	+.03	0.0	Corr.			+0.04
15	B	-.02	-0.4				
17	B	-.04	+0.1				
21	B	-.05	+0.2				
Mean.....		-0.002	-0.12				
Corr.....			-0.71				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				Mar. 29	B	— .08	—0.3
1889 Nov. 30	B	+0.03	+0.8	31	B	— .04	—0.6
Dec. 8	B	+ .01	+0.5	Apr. 2	B	— .09	.....
12	B	+ .05	+1.1	4	B	— .04	.....
18	B	+ .02	+0.3	Mean .....	.....	—0.022	—0.30
90 Mar. 15	B	+ .03	—0.1	Corr .....	.....	.....	—0.59
17	B	— .01	+0.3				
21	B	+ .01	+0.6				
Mean .....	.....	+0.020	+0.50				
Corr .....	.....	.....	—0.73				

117. ι GEMINORUM. $\alpha = 7 \ 18 \ 53.677. \ \delta = 28 \ 0 \ 57.73$ *Circle West.*

1888 Nov. 10	B	—0.03	—1.7
12	E	+ .03	—0.9
19	E	— .02	—2.0
22	B	— .04	.....
30	E	— .05	—1.6
Dec. 3	B	.00	—1.1
10	E	+ .02	—1.8
19	B	.00	—0.5
Mean .....	.....	—0.011	—1.37
Corr .....	.....	.....	+0.32

Circle East.

1889 Jan. 23	E	—0.04	—1.4
Nov. 16	B	+ .01	+0.2
17	B	+ .04	.....
Dec. 6	B	.00	—0.2
8	B	.00	+0.1
12	B	+ .01	.....
18	B	— .01	+0.1
90 Mar. 17	B	— .03	.....
18			

116. GR. 1308.

 $\alpha = 7 \ 19 \ 25.902. \ \delta = 68 \ 41 \ 20.48.$ *Circle East.*

1889 Nov. 9	B	—0.11	+3.0
30	B	— .16	+2.5
Dec. 22	B	— .19	+2.1
30	B	— .21	+2.1
90 Mar. 15	B	— .17	+1.4
21	B	— .27	+2.0
Mean .....	.....	—0.185	+2.18
Corr .....	.....	.....	—1.41

116. GR. 1308, S. P.

Circle West.

1888 July 2	B	—0.13	—0.4
Corr .....	.....	.....	—0.10

118. β CANIS MINORIS. $\alpha = 7 \ 21 \ 11.126. \ \delta = 8 \ 30 \ 37.54.$ *Circle West.*

1888 Nov. 10	B	+0.03	.....
Dec. 3	B	+ .05	—0.9
8	B	— .06	—0.4
10	E	— .04	—1.0
11	B	— .01	—1.7
19	B	— .02	—1.1

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
89 Apr. 2	B	0 00	.....	<i>Circle East.</i>			
4	B	.00	.....	1889 Nov. 16	B	+0.01	0.0
92 Feb. 5	F	— .06	—1.8	Dec. 6	B	— .02	—0.1
9	F	+ .06	—1.8	22	B	+ .03	—0.4
16	F	.00	—1.8	90 Mar. 15	B	+ .03	+0.1
Mean.....		—0.010	—1.31	17	B	— .03	—0.1
Corr.....			+0.64	21	B	— .03	+0.1
<i>Circle East.</i>				Mean		—0.002	—0.07
1889 Jan. 23	E	0.00	—0.9	Corr			—0.74
Nov. 9	B	+0.04	—0.2	119. α GEMINORUM.			
Dec. 8	B	+ .05	—0.2	$\alpha = 7 \ 27 \ 34.665. \ \delta = 32 \ 7 \ 44.54.$			
12	B	+ .02	.....	<i>Circle West.</i>			
18	B	.00	—0.8	1888 Dec. 8	B	+0.08	—0.3
30	B	— .03	+0.2	89 Apr. 4	B	+ .02	.....
90 Mar. 26	B	.00	—0.2	92 Feb. 9	F	+ .09	—0.7
29	B	— .04	.....	16	F	+ .01	—0.8
31	B	— .02	—0.4	Mean.....		+0.050	—0.60
Apr. 1	B	.00	.....	Corr.....			+0.19
2	B	— .02	.....	<i>Circle East.</i>			
4	B	— .03	.....	1889 Jan. 23	E	0.00	—0.2
Mean.....		—0.002	—0.36	Nov. 17	B	[+ .29]	.....
Corr.....			—0.41	30	B	+ .03	+1.2
398. ρ GEMINORUM.				Dec. 30	B	+ .01	+1.3
$\alpha = 7 \ 22 \ 2.126. \ \delta = 32 \ 0 \ 9.40.$				90 Mar. 15	B	+ .02	+1.0
<i>Circle West.</i>				21	B	+ .01	+0.9
1888 Nov. 10	B	+0.02	—1.5	26	B	— .01	+0.4
12	E	+ .04	—0.4	28	B	.00	.....
19	E	+ .02	—1.5	Apr. 2	B	+ .01	.....
22	B	+ .07	—1.8	4	B	+ .02	.....
23	B	+ .06	—0.9	Mean.....		+0.010	+0.77
30	E	+ .03	—1.2	Corr.....			—0.75
Mean.....		+0.040	—1.22				
Corr.....			+0.18				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
120. α CANIS MINORIS.				121. κ GEMINORUM.			
$\alpha = 7 \ 33 \ 32.625. \ \delta = 5 \ 30 \ 23.03.$				$\alpha = 7 \ 37 \ 48.394. \ \delta = 24 \ 39 \ 39.94.$			
<i>Circle West.</i>				<i>Circle East.</i>			
1888 Nov. 10	B	+0.03	-2.0	1889 Nov. 30	B	+0.04	0.0
12	E	+ .01	-0.6	Dec. 6	B	+ .01	+0.3
89 Apr. 4	B	.00	.....	22	B	+ .02	-0.1
Mean.....		+0.013	-1.30	90 Mar. 31	B	+ .03	+0.1
Corr.			+0.27	92 Feb. 5	F	- .04	-1.0
<i>Circle East.</i>				16	F	- .01	-1.2
1889 Jan. 23	E	-0.02	-0.8	Mean		+0.008	-0.32
Nov. 16	B	+ .09	-0.3	Corr.			-0.44
Mean		+0.035	-0.55				
Corr			-0.34				
399. 24 LYNCIS.				122. β GEMINORUM.			
$\alpha = 7 \ 33 \ 41.911. \ \delta = 58 \ 58 \ 0.27.$				$\alpha = 7 \ 38 \ 35.079. \ \delta = 28 \ 17 \ 28.53.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Nov. 10	B	-0.02	-0.6	1888 Nov. 19	E	-0.03	-0.9
12	E	- .04	+0.5	Dec. 3	B	- .06	-0.5
19	E	- .03	+0.4	8	B	- .03	-1.0
22	B	- .03	+0.2	89 Mar. 23	B	- .12	.....
23	B	- .09	+0.4	Apr. 2	B	- .03	.....
Dec. 10	E	- .06	+0.4	4	B	- .06	.....
Mean.....		-0.045	+0.22	Mean.....		-0.055	-0.80
Corr.			-0.10	Corr.			+0.32
<i>Circle East.</i>				<i>Circle East.</i>			
1890 Mar. 15	B	+ .02	+0.9	1889 Nov. 9	B	-0.03	+0.6
17	B	- .04	+0.7	Dec. 8	B	- .06	+0.6
21	B	- .05	+1.2	12	B	+ .01	.....
26	B	- .08	+1.1	18	B	.00	+0.5
28	B	- .04	+0.8	30	B	- .03	.....
31	B	- .07	+1.0	90 Mar. 12	B	- .01	0.0
Mean		-0.043	+0.95	26	B	- .04	+0.2
Corr.			-0.85	28	B	- .03	-0.3
				29	B	- .09	+0.4

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$Dec.$ "
Apr. 1	B	+ .03	.....	Nov. 30	E	+ .06	+0.2
2	B	- .03	.....	Dec. 8	B	+ .10	+0.4
4	B	- .02	.....	10	E	- .03	+0.2
10	B	- .01	.....	Mean		+0.038	+0.15
Mean		-0.024	+0.29	Corr.			+0.23
Corr.			-0.61	<i>Circle East.</i>			
400. π GEMINORUM.				1889 Dec. 22	B	+0.01	+1.6
$\alpha = 7 \ 40 \ 24.868. \ \delta = 33 \ 41 \ 6 \ 10.$				30	B	- .02	+1.6
<i>Circle West.</i>				90 Mar. 12	B	+ .04	+0.7
1888 Nov. 19	E	-0.04	-1.5	17	B	- .04	+1.2
22	B	- .06	-1.3	21	B	.00	+1.0
23	B	- .04	-1.0	26	B	- .06	+0.7
30	E	.....	-1.4	28	B	- .01	+1.0
Dec. 3	E	- .07	-1.0	Mean		-0.011	+1.11
8	B	- .02	-0.4	Corr.			-0.90
10	E	- .07	-1.2	401. GR. 1374.			
Mean.....		-0.050	-1.11	$\alpha = 7 \ 47 \ 0.969. \ \delta = 74 \ 12 \ 37.79.$			
Corr.....			+0.36	<i>Circle West.</i>			
<i>Circle East.</i>				1888 Nov. 19	E	-0.06	-0.7
1889 Nov. 16	B	-0.04	+0.4	22	B	+ .31	-0.8
Dec. 22	B	- .06	-0.6	30	E	+ .15	-0.6
30	B	- .08	+0.6	Dec. 3	B	+ .16	-0.4
90 Mar. 12	B	- .02	0.0	8	B	+ .23	-0.6
17	B	- .06	-0.3	10	E	+ .09	-1.0
21	B	- .03	+0.2	Mean.....		+0.147	-0.68
Mean		-0.048	+0.05	Corr.....			+0.07
Corr.....			-0.79	<i>Circle East.</i>			
402. 26 LYNCIS.				1890 Mar. 21	B	+0.09	+0.9
$\alpha = 7 \ 46 \ 42.090. \ \delta = 47 \ 50 \ 55.99.$				26	B	+ .04	+1.0
<i>Circle West.</i>				28	B	+ .17	+0.4
1888 Nov. 10	B	-0.02	-0.1	29	B	- .05	+0.7
19	E	+ .06	0.0	31	B	+ .10	+0.4
22	B	+ .06	+0.2	Apr. 1 ¹	B	+ .06	[+0.7]
				Mean.....		+0.068	+0.68
				Corr.....			-1.06
				¹ Tel. mic. diminished 0.1 rev.			

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
404. GR. 1374, S. P.				<i>Circle East.</i>			
<i>Circle West.</i>							
1888 July 11	E	-0.02	-0.4	1890 Mar. 17	B	-0.17	+1.3
18	B	+ .09	+0.3	21	B	- .15	+0.7
20	B	+ .16	0.0	26	B	- .20	+0.6
26	E	- .09	+0.3	28	B	- .13	+0.6
27	B	+ .30	+0.5	29	B	- .22	+1.0
28	E	+ .08	-0.4	31	B	- .18	+0.6
Mean.....		+0.087	+0.05	Mean.....		-0.175	+0.80
Corr.			+0.23	Corr.....			-0.89
<i>Circle East.</i>							
403. 53 CAMELOPARDI.				<i>Circle West.</i>			
1889 Aug. 2	B	-0.01	+0.1				
4	E	- .13	+1.1	1888 July 11	E	-0.04	+0.6
5	B	- .24	+2.4	18	B	- .15	-0.2
11	E	+ .09	+1.9	19	E	- .26	+0.7
15	E	+ .03	+1.6	20	B	- .13	+0.9
21	B	+ .01	+2.4	26	E	- .21	+0.8
29	E	- .10	+2.3	27	B	- .09	+0.8
Mean.....		-0.050	+1.69	Mean.....		-0.147	+0.60
Corr.....			-1.35	Corr.....			-0.24
403. 53 CAMELOPARDI.				<i>Circle East.</i>			
$\alpha = 7 \ 52 \ 18.633. \ \delta = 60 \ 37 \ 27.15.$							
<i>Circle West.</i>							
1888 Nov. 19	E	-0.22	+0.2	1889 Aug. 4	E	-0.26	-0.4
22	B	- .10	+0.3	5	B	- .43	+1.7
30	E	- .02	+0.3	11	E	- .22	-0.7
Dec. 8	B	- .02	+0.5	15	E	- .25	+0.7
10	E	- .12	-0.1	21	B	- .13	+2.2
89 Mar. 19	B	- .05	+0.5	27	B	- .24	+1.3
Mean.....		-0.088	+0.28	29	E	- .20	+1.4
Corr.....			-0.12	Mean.....		-0.247	+0.89
				Corr.....			-1.03

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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404. χ GEMINORUM.

$\alpha = 7 \ 56 \ 45.728.$ $\delta = 28 \ 6 \ 7.81.$

Circle West.

1888	Nov. 19	E	-0.01	-1.0
	22	B	- .03	-1.4
	30	E	- .01	-1.3
	Dec. 8	B	.00	-0.4
	10	E	- .01	-0.4
89	Mar. 20	B	.00	-1.3
Mean	.....		-0.010	-0.97
Corr	.....			+0.32

Circle East.

1890	Mar. 17	B	+0.10	0.0
	21	B	- .01	-0.4
	26	B	.00	-0.1
	28	B	+ .01	-0.2
	29	B	.00	+0.6
	31	B	+ .01	-0.3
Mean	.....		+0.018	-0.07
Corr.	.....			-0.60

405. 27 LYNCIS.

$\alpha = 8 \ 0 \ 10.813.$ $\delta = 51 \ 49 \ 22.98.$

Circle West.

1888	Nov. 19	E	-0.15	-0.2
	22	B	+ .20	0.0
	23	B	+ .16	-0.1
	30	E	+ .06	-0.3
	Dec. 8	B	+ .13	-0.3
	10	E	+ .18	-0.3
Mean	.....		+0.097	-0.20
Corr	.....			0.00

Circle East.

1888	Nov. 19	E	-0.15	-0.2
	22	B	+ .20	0.0
	23	B	+ .16	-0.1
	30	E	+ .06	-0.3
	Dec. 8	B	+ .13	-0.3
	10	E	+ .18	-0.3
Mean	.....		+0.097	-0.20
Corr	.....			0.00

406. BR. 1147.

$\alpha = 8 \ 5 \ 42.452.$ $\delta = 76 \ 5 \ 29.09.$

Circle West.

1890	Mar. 12	B	+0.07	+0.1
	17	B	+ .10	+0.7
	21	B	+ .08	+0.2
	26	B	+ .09	+0.4
	29	B	.....	+0.9
	31	B	+ .09	+0.4
	Apr. 1	B	+ .13	+0.4
Mean	.....		+0.093	+0.44
Corr	.....			-1.00

Circle East.

1890	Mar. 12	B	+0.23	+1.8
	17	B	+ .05	+1.5
	21	B	- .03	+1.1
	26	B	- .01	+0.9
	31	B	+ .11	+1.2
	Apr. 1	B	+ .13	+0.9
Mean	.....		+0.080	+1.23
Corr.	.....			-1.08

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
406. BR. 1147, S. P.				Mar. 20	B	+ .02	-1.0
<i>Circle West.</i>				21	B	- .02	-0.9
1888 July 11	E	-0.03	-0.1	22	E	+ .01	-1.5
17	E	- .15	+0.8	23	B	- .01	.....
18	B	- .02	+0.3	92 Feb. 5	F	+ .06	.....
19	E	- .22	+0.4	16	F	- .01	-1.6
20	B	+ .07	+0.8	Mean		+0.009	-1.19
26	E	- .25	.....	Corr			+0.58
27	B	+ .11	+1.2	<i>Circle East.</i>			
Mean		-0.070	+0.57	1889 Dec. 22	B	+0.04	-0.6
Corr			-0.01	30	B	+ .04	+0.2
<i>Circle East.</i>				90 Mar. 12	B	+ .02	+0.1
1889 Aug. 2	B	-0.03	+2.4	17	B	+ .01	-0.1
4	E	- .15	+1.6	21	B	.00	-0.2
5	B	- .31	+1.8	26	B	+ .06	0.0
11	E	+ .02	+1.4	28	B	+ .01	-0.5
15	E	- .03	+1.4	31	B	+ .01	.....
21	B	+ .11	+1.6	Apr. 1	B	+ .05	.....
29	E	- .02	+1.9	2	B	+ .01	+0.3
Mean		-0.059	+1.73	10	B	+ .02	.....
Corr			-1.18	Mean		+0.025	-0.10
123. β CANCRI.				Corr			-0.52
= 8 10 32.976. δ = 9 31 26.48.				407. 31 LYNCIS.			
<i>Circle West.</i>				α = 8 15 18.314. δ = 43 32 25.11.			
1888 Nov. 12	E	+0.06	-1.0	<i>Circle West.</i>			
19	E	- .01	-1.3	1888 Nov. 23	B	-0.02	+0.3
22	B	+ .03	-1.3	30	E	- .05	+0.5
23	B	.00	-1.0	Dec. 8	B	- .03	-0.1
30	E	- .04	-1.2	10	E	- .10	-0.4
Dec. 3	B	+ .04	-1.2	89 Mar. 19	B	- .08	0.0
10	E	.00	-1.0	20	B	- .07	-0.5
89 Mar. 19	B	- .01	-1.3	22	E	- .09	-0.5
				Mean		-0.063	-0.10
				Corr			+0.01

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>							
1890 Mar. 12	B	-0.07	+0.5	Apr. 2	B	+ .10	+0.1
17	B	- .06	+0.1	4	B	+ .04	-0.8
21	B	- .11	0.0	11	B	+ .01	.....
26	B	- .07	-0.1	Mean.....	.....	+0.070	-0.18
29	B	- .10	+0.7	Corr.....	.....	.....	-0.28
31	B	- .05	+0.2	125. α URSAE MAJORIS.			
Apr. 1	B	.....	+0.2	$\alpha = 8 \ 21 \ 7.310. \quad \delta = 61 \ 5 \ 6.44.$			
Mean.....	.....	-0.077	+0.23	<i>Circle West.</i>			
Corr.....	.....	.....	-0.47	1888 Nov. 12	E	+0.01	0.0
124. BR. 1197.				19	E	+ .02	-0.1
$\alpha = 8 \ 20 \ 9.815. \quad \delta = -3 \ 32 \ 52.73.$				22	B	- .06	0.0
<i>Circle West.</i>				23	B	- .01	+0.8
1888 Nov. 12	E	+0.05	-2.0	Dec. 8	B	+ .02	+1.1
19	E	+ .01	-0.7	10	E	+ .03	0.0
22	B	+ .10	-0.9	89 Mar. 20	B	- .09	0.0
30	E	+ .03	-0.5	21	B	- .02	+0.5
89 Mar. 19	B	- .01	.....	22	E	- .04	+0.3
20	B	+ .04	-0.6	Mean.....	.....	-0.016	+0.29
23	B	+ .05	-1.4	Corr.....	.....	.....	-0.10
25	E	+ .06	-0.2	<i>Circle East.</i>			
29	E	- .03	-0.6	1889 Dec. 8	B	-0.11	.....
92 Feb. 5	F	+ .12	-0.7	22	B	- .01	+0.7
16	F	.00	-1.6	30	B	+ .09	+1.5
Mean.....	.....	+0.038	-0.92	90 Mar. 12	B	- .01	.....
Corr.....	.....	.....	+0.18	15	B	- .10	+0.5
<i>Circle East.</i>				17	B	- .01	+1.1
1890 Mar. 15	B	+0.08	-0.2	21	B	- .05	+0.3
21	B	+ .06	-0.2	28	B	+ .05	.....
26	B	+ .07	-0.2	29	B	- .13	.....
29	B	+ .13	+0.2	31	B	- .04	-0.7
				Apr. 1	B	- .05	+0.8
				2	B	- .01	.....

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
Apr. 4	B	— .04	.....	<i>Circle East.</i>			
11	B	+ .08	.....	1890 Mar. 17	B	+0.09	+1.3
Mean		—0.024	+0.60	21	B	+ .10	+1.4
Corr			—0.86	26	B	+ .05	+1.3
125. α URSAE MAJORIS, S. P.				31	B	+ .09	+1.3
<i>Circle West.</i>				Apr. 1	B	+ .06	+1.3
1888 July 18	B	—0.02	—0.6	2	B	+ .10	+1.7
Aug. 3	B	— .16	—1.0	Mean		+0.082	+1.38
6	B	— .05	—0.4	Corr			—0.80
Mean		—0.077	—0.67	409. η CANCRI.			
Corr			—0.19	$\alpha = 8 \ 26 \ 20.865. \ \delta = 20 \ 48 \ 51 \ 62.$			
<i>Circle East.</i>				<i>Circle West.</i>			
1889 Aug. 4	E	—0.20	+1.1	1888 Nov. 30	E	—0.02	—1.5
11	E	+ .04	+0.6	Dec. 8	B	— .03	—0.2
Mean		—0.080	+0.85	10	E	— .02	—0.8
Corr			—1.05	89 Mar. 19	B	— .01	—0.8
408. GR. 1450.				22	E	— .01	—1.1
$\alpha = 8 \ 25 \ 45.821. \ \delta = 38 \ 23 \ 33.95.$				23	B	— .02	—1.0
<i>Circle West.</i>				Mean		—0.018	—0.90
1888 Nov. 23	B	+0.07	+0.6	Corr			+0.44
30	E	+ .07	—0.1	<i>Circle East.</i>			
Dec. 8	B	+ .08	+0.8	1890 Mar. 12	B	0.00	+0.2
10	E	+ .02	+0.2	28	B	+ .04	—0.1
89 Mar. 20	B	+ .14	+0.1	29	B	+ .01	+0.4
21	B	+ .14	+0.7	Apr. 4	B	.00	+0.1
Mean		+0.087	+0.38	10	B	— .01	—0.3
Corr			+0.34	11	B	— .01	—0.1
19				Mean		+0.005	+0.03
				Corr			—0.43

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
410. GR. 1446.				<i>Circle East.</i>			
$\alpha = 8 \ 27 \ 27.860. \ \delta = 74 \ 0 \ 47.70.$				1889 Aug. 2	B	-0.03	+1.1
<i>Circle West.</i>				4	E	- .31	+1.5
1888 Nov. 23	B	-0.03	+0.4	11	E	+ .03	+1.4
30	E	+ .03	-1.1	15	E	- .04	+1.5
Dec. 8	B	+ .04	-1.0	21	B	+ .06	+2.6
10	E	- .04	-0.6	22	E	- .16	+1.0
89 Mar. 20	B	+ .02	+1.8	24	B	- .12	+2.2
21 ¹	B	- .09	[+2.3]	Mean.....		-0.081	+1.61
Mean.....		-0.012	-0.10	Corr.....			-1.37
Corr.....			+0.07	411. GR. 1460.			
¹ Poor focus.				$\alpha = 8 \ 31 \ 8.348. \ \delta = 53 \ 5 \ 47.09.$			
<i>Circle East.</i>				<i>Circle West.</i>			
1890 Mar. 17	B	-0.01	+0.5	1888 Nov. 23	B	+0.16	+0.1
21	B	- .14	+0.5	30	E	+ .15	-0.5
26	B	- .12	+0.3	Dec. 8	B	+ .23	+0.1
31	B	- .05	+0.7	10	E	+ .15	-1.1
Apr. 1	B	- .07	+0.1	89 Mar. 19	B	+ .12	[+2.8]
2	B	.00	+1.0	20	B	+ .16	+1.8
Mean.....		-0.065	+0.52	Mean.....		+0.162	+0.08
Corr.....			-1.06	Corr.....			+0.25
410. GR. 1446, S. P.				<i>Circle East.</i>			
<i>Circle West.</i>				1890 Mar. 12	B	+0.17	+0.5
1888 July 11	E	+0.13	-0.2	21	B	.....	+0.3
17	E	- .14	+1.0	26	B	+ .15	.....
18	B	- .06	-0.6	29	B	+ .10	+1.1
19	E	- .19	+0.3	31	B	+ .13	+0.3
20	B	- .04	-1.5	Apr. 1	B	+ .14	+0.7
26	B	- .12	+0.7	4	B	+ .17	+1.3
Mean.....		-0.070	-0.05	Mean.....		+0.143	+0.70
Corr.....			+0.27	Corr.....			-0.83

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
126. δ CANCRI.				Circle East.			
$\alpha = 8 \ 38 \ 26.013. \ \delta = 18 \ 33 \ 29.39.$							
Circle West.							
1888 Nov. 23	B	+ .02	-0.7	1890 Mar. 15	B	.....	-0.5
30	E	+ .01	.....	17	B	-0.01	.....
Dec. 8	B	+ .01	-1.6	21	B	.....	-0.9
10	E	+ .04	-1.0	26	B	- .01	.....
89 Mar. 19	B	+ .04	-1.3	28	B	- .01	-0.7
20	B	+ .04	-1.3	31	B	.00	-0.2
21	B	+ .02	-0.7	Apr. 2	B	- .01	-0.2
22	E	.00	-1.0	10	B	- .05	+0.1
23	B	+ .03	-1.0	11	B	.00	-0.3
29	E	- .03	-1.9	Mean.....	.....	-0.013	-0.39
Mean .....	.....	+0.018	-1.17	Corr.....	.....	.....	-0.65
Corr .....	.....	.....	+0.68				
Circle East.				128. ε HYDRAE.			
				$\alpha = 8 \ 40 \ 57.045. \ \delta = 6 \ 49 \ 19.21.$			
				Circle West.			
1890 Mar. 12	B	+0.03	-0.5	1888 Nov. 23	B	-0.01	-1.3
29	B	+ .02	+0.6	30	E	+ .02	-2.0
Apr. 1	B	+ .01	-0.6	Dec. 8	B	.00	-1.2
4	B	.00	-0.5	10	E	+ .01	-1.5
Mean .....	.....	+0.015	-0.25	89 Mar. 21	B	+ .04	-1.4
Corr .....	.....	.....	-0.40	22	E	+ .02	-1.2
				29	E	- .01	-2.3
127. ι CANCRI.				Mean .....	.....	+0.010	-1.56
$\alpha = 8 \ 40 \ 2.449. \ \delta = 29 \ 9 \ 42.63.$				Corr. ....	.....	.....	+0.50
Circle West.				Circle East.			
1889 Mar. 19	B	-0.05	-1.1	1890 Mar. 12	B	-0.01	-0.4
20	B	- .01	-1.7	29	B	- .01	+0.1
25	E	- .07	+0.1	Apr. 1	B	+ .02	-0.6
92 Feb. 5	F	- .01	-1.0	4	B	+ .01	-0.4
16	F	- .03	-1.7	Mean .....	.....	+0.002	-0.32
Mean .....	.....	-0.034	-1.08	Corr .....	.....	.....	-0.36
Corr .....	.....	.....	+0.32				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
412. σ^2 CANCRI <i>med.</i>				Apr. 11	B	— .04	—0.7
$\alpha = 8 \ 47 \ 31.982. \ \delta = 30 \ 59 \ 43.58.$				Mean.....		+0.003	—0.27
<i>Circle West.</i>				Corr.			—0.35
1888 Nov. 23	B	—0.02	—0.1	130. ι URSAE MAJORIS.			
30	E	+ .01	—0.3	$\alpha = 8 \ 51 \ 40.535. \ \delta = 48 \ 28 \ 22.85.$			
Dec. 8	B	+ .04	—0.4	<i>Circle West.</i>			
10	E	+ .01	—0.7	1889 Apr. 4	B	—0.05	+0.3
89 Mar. 20	B	+ .05	—1.5	Corr ...			+0.12
22	E	— .01	—0.4	<i>Circle East.</i>			
Mean.....		+0.013	—0.57	1890 Apr. 10	B	—0.08	+1 0
Corr			+0.18	11	B	— .03	+1.2
<i>Circle East.</i>				Mean.....		—0.055	+1.10
1890 Mar. 12	B	—0.02	—0.2	Corr.			—1.02
17	B	+ .01	—0.1	131. α CANCRI.			
31	B	+ .02	+0.1	$\alpha = 8 \ 52 \ 28.248. \ \delta = 12 \ 16 \ 59.18.$			
Apr. 1	B	— .03	+0.1	<i>Circle West.</i>			
2	B	— .02	0.0	1892 Feb. 16	F	+0.03	—1.7
4	B	+ .02	+0.3	Corr			+0.49
Mean		—0.003	+0.03	<i>Circle East.</i>			
Corr			—0.57	1890 Apr. 16	B	+0.04	—0.3
129. ζ HYDRAE.				17	B	+ .09	+0.6
$\alpha = 8 \ 49 \ 34.751. \ \delta = 6 \ 21 \ 49.56.$				Mean		+0.065	+0.15
<i>Circle West.</i>				Corr			—0.63
1889 Mar. 23	B	0.00	—1.2	413. ρ URSAE MAJORIS.			
25	E	— .03	—0.2	$\alpha = 8 \ 52 \ 37.255. \ \delta = 68 \ 3 \ 27.29.$			
29	E	.00	—2.1	<i>Circle West.</i>			
Mean.....		—0.010	—1.17	1888 Nov. 23	B	—0.06	+1.3
Corr.....			+0.41	30	E	+ .03	+0.4
<i>Circle East.</i>				89 Mar. 19	B	— .03	0.0
1890 Mar. 29	B	+0.03	0.0				
Apr. 10	B	+ .02	—0.1				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Mar. 20	B	— .03	—0.7	Sept. 27	B	— .07	+1.2
25	E	— .16	+0.8	Mean .....	.....	—0.203	+1.20
29	E	— .02	—1.0	Corr.....	.....	.....	—0.82
Mean .....	.....	—0.045	+0.13	132. 10 URSAE MAJORIS.			
Corr .....	.....	.....	—0.18	$\alpha = 8 \ 53 \ 29.906. \quad \delta = 42 \ 13 \ 3.75.$			
<i>Circle East.</i>				<i>Circle East.</i>			
1890 Mar. 12	B	—0.10	+0.4	1890 Apr. 19	B	+0.04	+0.5
29	B	— .18	+0.9	Corr .....	.....	.....	—0.70
Apr. 2	B	— .06	+1.4	414. GR. 1501.			
4	B	— .06	+1.1	$\alpha = 8 \ 55 \ 56.822. \quad \delta = 54 \ 43 \ 0.94.$			
10	B	— .06	+1.9	<i>Circle West.</i>			
11	B	+ .02	+1.7	1888 Nov. 23	B	—0.07	—0.3
Mean .....	.....	—0.073	+1.23	Dec. 10	E	— .10	—1.4
Corr .....	.....	.....	—1.32	89 Mar. 19	B	— .09	—0.8
413. ρ URSAE MAJORIS, S. P.				21	B	— .08	—0.4
<i>Circle West.</i>				22	E	— .12	—0.5
1888 July 26	E	—0.21	+1.5	25	E	— .15	+0.3
28	E	— .19	+0.6	29	E	— .13	—1.8
Aug. 3	B	— .20	+0.2	Mean .....	.....	—0.106	—0.70
6	B	— .17	+0.8	Corr .....	.....	.....	+0.10
16	B	— .09	—0.7	<i>Circle East.</i>			
17	E	— .12	—0.1	1890 Apr. 2	B	—0.10	+0.3
20	B	— .10	+0.3	4	B	— .15	+0.3
Mean .....	.....	—0.154	+0.37	10	B	— .13	+0.5
Corr .....	.....	.....	—0.13	11	B	— .06	+0.4
<i>Circle East.</i>				16	B	— .19	0.0
1889 Aug. 24	B	—0.13	+0.9	17	B	— .14	+0.8
27	B	— .21	+1.2	Mean.....	.....	—0.128	+0.38
29	E	— .23	+0.6	Corr.....			—0.73
Sept. 20	B	— .28	+1.5				
21	B	— .30	+1.8				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
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133. κ URSAE MAJORIS.

$\alpha = 8\ 56\ 6.879.$ $\delta = 47\ 35\ 27.36.$

Circle West.

1888 Dec. 8	B	+0.01	-0.2
89 Mar. 23	B	-.04	+0.7
Apr. 4	B	-.03	+0.6
92 Feb. 5	F	-.05	+0.6
Mean.....		-0.028	+0.42
Corr.			+0.25

Circle East.

1890 Mar. 12	B	-0.04	+1.0
17	B	-.02	+0.8
26	B	-.09	+0.7
28	B	+.03	+1.2
29 ¹	B	[+.20]	.....
31	B	-.01	+1.2
Apr. 1	B	-.06	+0.9
Mean.....		-0.032	+0.97
Corr.			-0.86

¹ Transit on three threads.

415. σ^2 URSAE MAJORIS.

$\alpha = 9\ 0\ 42.559.$ $\delta = 67\ 34\ 49.57.$

Circle West.

1888 Nov. 23	B	-0.08	0.0
30	E	+.13	-0.1
Dec. 10	E	-.08	-0.9
89 Mar. 19	B	-.20	+0.4
22	E	-.14	+0.2
Mean.....		-0.074	-0.08
Corr.			-0.16

Circle East.

1890 Mar. 12	B	-0.16	+0.5
17	B	-.08	+1.0
21	B	-.04	+0.5
28	B	-.09	+0.7
31	B	-.09	+0.3
Apr. 2	B	-.07	+1.1
4	B	-.09	+0.7
Mean.....		-0.089	+0.69
Corr.			-1.23

415. σ^2 URSAE MAJORIS, S. P.

Circle West.

1888 July 17	E	-0.08	+1.6
19	E	-.20	+0.4
26	E	-.02	+1.1
28	E	-.07	+0.4
Aug. 3	B	-.19	-0.1
6	B	-.10	+1.3
Mean.....		-0.110	+0.78
Corr.			-0.18

Circle East.

1889 Aug. 2	B	-0.21	[-3.1]
4	E	-.37	+1.0
5	B	-.57	+1.4
11	E	-.03	+0.8
15	E	-.15	+1.0
21	B	-.12	+1.1
22	E	-.13	+0.7
Mean.....		-0.226	+1.00
Corr.			-0.81

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
416. 36 LYNCS.				92 Feb. 5	F	+ .01	-0.5
$\alpha = 9 \ 6 \ 36.623. \ \delta = 43 \ 40 \ 14.72.$				16	F	.00	-1.3
<i>Circle West.</i>				Mean		+0.005	-0.84
				Corr			+0.14
1888 Nov. 23	B	-0.07	-0.1	<i>Circle East.</i>			
30	E	.....	-0.7	1890 Mar. 12	B	+0.08	-0.6
Dec. 8	B	- .02	-0.9	17	B	+ .10	-0.5
10	E	- .11	-0.6	21	B	+ .04	-0.4
89 Mar. 23	B	- .15	+0.1	28	B	+ .02	-0.5
25	E	- .14	0.0	29	B	+ .06	+0.5
29	E	- .08	-1.7	Apr. 11	B	+ .02	-0.5
Mean.....		-0.095	-0.56	19	B	+ .03	.....
Corr			+0.08	Mean		+0.050	-0.33
<i>Circle East.</i>				Corr			-0.20
1890 Mar. 12	B	-0.12	-0.3	135. 38 LYNCS.			
17	B	- .13	+0.3	$\alpha = 9 \ 11 \ 59.921. \ \delta = 37 \ 16 \ 3.45.$			
26	B	- .14	0.0	<i>Circle West.</i>			
28	B	- .14	+0.2	1888 Nov. 30	E	.....	-1.2
29	B	- .19	+0.5	Dec. 8	B	0.00	-0.7
Apr. 11	B	- .10	0.0	89 Apr. 15	E	+ .01	.....
Mean.....		-0.137	+0.12	19	B	+ .03	-1.4
Corr			-0.50	Mean		+0.013	-1.10
134. 9 HYDRAE.				Corr			+0.53
$\alpha = 9 \ 8 \ 38.475. \ \delta = 2 \ 46 \ 40.54.$				<i>Circle East.</i>			
<i>Circle West.</i>				1890 Mar. 21	B	-0.05	-0.4
1888 Nov. 23	B	0.00	-0.9	29	B	- .08	+0.3
30	E	.....	-0.4	Apr. 2	B	.00	+0.6
Dec. 8	E	+ .03	-0.8	16	B	.00	+0.2
10	E	.00	-1.4	19	B	+ .01	-0.2
89 Mar. 19	B	+ .01	-0.2	Mean		-0.024	+0.10
25	E	- .03	-0.7	Corr			-0.61
Apr 19	B	+ .02	-1.4				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
417. 83 CANCRI.				Mar. 29			
$\alpha = 9 \ 12 \ 50.529. \ \delta = 18 \ 10 \ 16.31.$				Apr. 2			
<i>Circle West.</i>				15			
1888 Dec. 10	E	-0.01	-0.8	92 Feb. 5			
89 Mar. 21	B	+ .07	-0.4	16			
22	E	- .03	-1.6	Mean			
23	B	+ .02	-0.3	Corr.			
29	E	+ .03	-1.8	<i>Circle East.</i>			
Apr. 2	B	+ .07	-0.6	1890 Mar. 21	B	+0.03	-0.2
Mean		+0.025	-0.92	29	B	+ .05	+0.7
Corr.			+0.77	Apr. 2	B	+ .03	+0.1
<i>Circle East.</i>				11	B	+ .01	-0.2
1890 Mar. 12	B	-0.01	-0.1	Mean		+0.030	+0.10
17	B	+ .01	+0.8	Corr.			-0.70
28	B	+ .03	+0.1	137. 1 H. DRACONIS.			
Apr. 1	B	+ .01	+0.1	$\alpha = 9 \ 21 \ 21.398. \ \delta = 81 \ 48 \ 41.97.$			
4	B	- .03	+0.7	<i>Circle West.</i>			
10	B	+ .02	+0.3	1888 Nov. 23	B	+0.28	+0.6
Mean		+0.005	+0.32	30	E	+ .29	+0.7
Corr.			-0.39	Dec. 8	B	+ .11	-0.4
136. 40 LYNCIS.				10	E	+ .27	-0.1
$\alpha = 9 \ 14 \ 21.171. \ \delta = 34 \ 51 \ 26.04.$				89 Mar. 19	B	+ .20	+0.9
<i>Circle West.</i>				20	B	+ .38	+0.8
1888 Nov. 23	B	0.00	-0.4	21	B	+ .15	0.0
30	E	.....	-1.2	22	E	+ .27	+0.3
Dec. 8	B	+ .06	-1.1	23	B	+ .04	+0.9
89 Mar. 19	B	- .01	-0.2	25	E	+ .20	+0.8
20	B	.00	-1.0	29	E	+ .19	-1.9
22	E	.00	-0.6	Apr. 2	B	+ .26	+0.6
23	B	.00	-0.4	4	B	+ .35	+0.7
25	E	+ .06	-0.9	5	E	+ .28	.....
				13	B	+ .41	.....

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Apr. 15	E	+ .32	.....	July 27	B	+ .23	+1.3
19	B	+ .35	+1.7	28	E	+ .18	+0.8
92 Feb. 5	F	+ .64	+0.7	Aug. 2	E	- .01	+1.1
16	F	+ .35	+0.4	3 ¹	B	+ .10	[+0.5]
Mean		+0.281	+0.42	4	E	+ .24	+0.9
Corr.			-0.26	6	B	+ .03	+0.9

Circle East.

1890 Mar. 12	B	+0.45	+0.3
17	B	+ .42	+0.3
21	B	+ .39	+0.3
26	B	+ .49	-0.1
28	B	+ .52	+0.7
29	B	+ .36	+0.5
31	B	+ .35	+0.7
Apr. 1	B	+ .36	+0.4
2	B	+ .48	+0.5
4	B	+ .45	+0.8
10	B	+ .37	+0.5
11	B	+ .75	+0.8
16	B	+ .26	+0.3
17	B	+ .28	.....
19	B	+ .25	.....
Mean		+0.412	+0.46
Corr.			-0.72

137. 1 H. DRACONIS, S. P.

Circle West.

1888 July 11	E	+0.12	+0.1
17	E	+ .06	0.0
18	B	+ .20	-0.2
19	E	.00	+0.1
20	B	+ .06	+0.7
26	E	+ .33	0.0

Mean		+0.252	+0.36
Corr.			+0.10

¹ Tel. mic. increased 0.9 rev,

Circle East.

1889 Aug. 2	B	+0.30	+0.6
4	E	- .13	+0.8
5	B	- .26	+0.8
11	E	+ .23	.....

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Aug. 15	E	+ .24	+1.7	418. <i>d</i> URSAE MAJORIS.			
21	B	+ .26	+1.5	$\alpha = 9 \ 24 \ 44.934. \ \delta = 70 \ 18 \ 47.92.$			
22	E	+ .10	+0.5	<i>Circle West.</i>			
24	B	+ .12	+1.9	1888 Dec. 10	E	+0.09	-0.4
27	B	+ .40	+1.7	89 Mar. 21	B	- .02	-0.2
29	E	- .33	+0.6	22	E	- .12	-0.4
Sept. 20	B	+ .27	+1.3	23	B	- .13	+0.6
21	B	+ .27	.....	25	E	- .09	+0.4
27	B	+ .62	.....	29	E	- .18	-2.1
91 Sept. 23	F	+ .27	+0.5	Apr. 2	B	.00	+0.2
25	F	+ .30	+0.3	Mean .....	.....	-0.064	-0.27
Oct. 9	F	+ .54	+1.4	Corr .....	.....	.....	+0.29
10	F	+ .14	.....	<i>Circle East.</i>			
12	F	+ .22	.....	1890 Mar. 17	B	+0.02	+1.0
15	F	+ .40	0.0	28	B	- .03	+1.1
19	F	+ .44	+1.5	31	B	- .01	+1.5
20	F	+ .37	+1.5	Apr. 1	B	- .03	+1.1
21	F	+ .39	+1.3	4	B	- .05	+1.2
Mean .....	.....	+0.235	+1.05	10	B	- .03	+1.7
Corr .....	.....	.....	-0.89	Mean .....	.....	-0.022	+1.27
139. <i>h</i> URSAE MAJORIS.				Corr .....	.....	.....	-1.37
$\alpha = 9 \ 22 \ 51.080. \ \delta = 63 \ 32 \ 32.22.$				418. <i>d</i> URSAE MAJORIS, S. P.			
<i>Circle East.</i>				<i>Circle West.</i>			
1890 Mar. 12	B	+0.07	+0.3	1888 Aug. 3	B	-0.14	+0.6
29	B	+ .13	+0.7	6	B	- .06	-0.4
Apr. 2	B	+ .09	+0.9	8	E	- .02	+1.6
4	B	+ .06	+0.9	16	B	- .11	+0.4
10	B	+ .07	+1.0	17	E	- .13	+0.8
11	B	+ .22	+0.2	20	B	- .12	+0.7
Mean .....	.....	+0.107	+0.67	Mean .....	.....	-0.097	+0.62
Corr .....	.....	.....	-0.89	Corr .....	.....	.....	-0.08

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				419. 10 LEONIS MINORIS.			
				$\alpha = 9\ 27\ 29.069.$ $\delta = 36\ 53\ 8.05.$			
				<i>Circle West.</i>			
1889 Aug. 2	B	-0.14	+0.5	1888 Dec. 10	E	-0.02	-1.3
4	E	-.28	+0.3	89 Mar. 21	B	-.08	-1.2
5	B	-.32	+1.1	22	E	-.08	-1.1
15	E	-.23	+1.6	23	B	-.03	-0.9
21	B	-.17	+1.5	25	E	-.07	-0.9
22	E	-.13	+0.8	29	E	-.01	-1.9
Mean		-0.212	+0.97	Apr. 2	B	+.03	-1.0
Corr.....			-0.92	Mean.....		-0.037	-1.19
140. 9 URSAE MAJORIS.				Corr.....			+0.58
				<i>Circle East.</i>			
				1890 Mar. 12	B	-0.04	-0.3
<i>Circle West.</i>				28	B	-.02	-0.1
1888 Nov. 30	E	+0.11	+0.7	Apr. 2	B	-.01	+0.4
89 Mar. 19	B	-.07	+0.8	4	B	.00	+0.2
20	B	-.02	+0.4	10	B	+.01	+0.3
Apr. 4	B	+.01	+0.4	11	B	+.01	-0.1
13	B	-.02	.....	Mean		-0.008	+0.07
15	E	-.03	.....	Corr.....			-0.58
92 Feb. 16	F	+.01	+0.3	420. GR. 1564.			
Mean		-0.001	+0.52	$\alpha = 9\ 32\ 49.365.$ $\delta = 69\ 44\ 15.29.$			
Corr.....			+0.20	<i>Circle West.</i>			
<i>Circle East.</i>				1888 Dec. 10	E	-0.10	-0.3
1890 Mar. 21	B	+0.02	+1.4	89 Mar. 21	B	+.05	-0.5
Apr. 2	B	-.01	+1.9	22	E	-.04	-0.1
11	B	.00	+1.7	23	B	-.03	+0.3
16	B	+.04	+1.8	25	E	+.01	-0.5
17	B	.00	+1.5	29	E	+.13	-2.4
19	B	.00	+1.2	Apr. 2	B	+.09	-0.1
Mean		+0.008	+1.58	Mean		+0.016	-0.51
Corr.....			-0.95	Corr.....			+0.25

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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Circle East.

1890 Mar. 17	B	0.00	+0.9
28	B	+ .07	+1.1
31	B	+ .10	+1.9
Apr. 4	B	+ .04	+1.4
10	B	+ .03	+1.4
16	B	+ .02	+1.5
Mean.....		+0.043	+1.37
Corr.....			-1.43

420. GR.1564, S. P.

Circle West.

1888 July 26	E	-0.11	+0.9
Aug. 3	B	- .13	+0.9
4	E	+ .07	+1.3
6	B	+ .03	+1.7
8	E	- .03	+1.3
20	B	- .06	+0.8
Mean.....		-0.038	+1.15
Corr.....			-0.12

Circle East.

1889 Aug. 24	B	+0.04	+1.4
27	B	.00	+2.0
29	E	- .11	+0.7
Sept. 20	B	+ .26	+0.5
21	B	- .01	+2.5
27	B	+ .12	+0.4
Mean.....		+0.050	+1.25
Corr.....			-0.93

141. α LEONIS.

$\alpha = 9 \ 35 \ 16.978.$ $\delta = 10 \ 23 \ 32.78.$

Circle West.

1888 Nov. 30	E	- .02	-1.1
Dec. 10	E	.00	-1.1
89 Mar. 19	B	+ .03	-0.5
20	B	+ .01	-0.9
21	B	.00	-1.1
22	E	+ .02	-1.6
25	E	.00	-1.0
Apr. 2	E	.00	-0.4
Mean.....		+0.005	-0.96
Corr.....			+0.52

Circle East.

1890 Mar. 17	B	+0.06	-0.1
26	B	+ .03	-0.5
28	B	.00	0.0
31	B	+ .05	+0.4
Apr. 1	B	.00	-0.2
2	B	- .01	.....
4	B	+ .05	.....
10	B	+ .02	+0.3
11	B	- .06	.....
16	B	- .03	0.0
17	B	- .04	.....
Mean.....		+0.006	-0.01
Corr.....			-0.59

142. ϵ LEONIS.

$\alpha = 9 \ 39 \ 36.436.$ $\delta = 24 \ 16 \ 49.47.$

Circle West.

1888 Nov. 30	E	-0.05	-0.7
Dec. 10	E	- .07	-0.8

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
89 Mar. 20	B	— .04	.....	Mar. 26	B	— .10	—0.1
25	E	.00	—0.6	28	B	— .08	+0.2
Apr. 2	B	+ .01	—0.1	31	B	+ .05	+1.1
13	B	— .03	.....	Apr. 1	B	— .03	+0.1
92 Feb. 16	F	.00	—1.7	4	B	— .12	+0.6
Mean.....		—0.026	—0.78	16	B	— .01	.....
Corr.....			+0.28	20	B	.00	.....
<i>Circle East.</i>				Mean.....		—0.032	+0.25
				Corr.			—0.90

1890 Mar. 26	B	+0.03	—0.7
28	B	+ .05	—0.2
Apr. 1	B	+ .02	—0.4
2	B	— .01	—0.1
10	B	+ .01	—0.5
Mean		+0.020	—0.38
Corr			—0.43

144. μ LEONIS.

$$\alpha = 9 \ 46 \ 30.426, \quad \delta = 26 \ 31 \ 28.88.$$

*Circle West.*143. ν URSAE MAJORIS.

$$\alpha = 9 \ 43 \ 9.904, \quad \delta = 59 \ 33 \ 20.98.$$

Circle West.

1888 Nov. 30	E	+0.12	—0.8
Dec. 10	E	— .01	0.0
89 Mar. 20	B	— .06	—0.7
21	B	— .03	—0.7
22	E	— .07	—0.4
Apr. 2	B	— .02	+0.2
Mean.....		—0.012	—0.40
Corr.....			—0.12

Circle East.

1890 Mar. 12	B	—0.01	—0.1
17	B	— .03	0.0
21	B	+ .01	+0.2

1888 Nov. 30	E	+0.01	—1.4
Dec. 10	E	+ .06	—1.1
89 Mar. 23	B	+ .01	—0.5
Apr. 5	E	.00	—1.4
Mean		+0.020	—1.10
Corr			+0.34

Circle East.

1890 Mar. 21	B	+0.01	—0.7
31	B	+ .05	+0.3
Apr. 1	B	+ .02	—0.6
10	B	+ .02	—0.5
16	B	+ .03	—0.1
17	B	+ .03	
20	B	+ .07	
Mean.....		+0.033	—0.32
Corr			—0.44

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$Dec.$ "
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421. GR. 1586.

$\alpha = 9 \ 48 \ 32.217.$ $\delta = 73 \ 24 \ 7.75.$

Circle West.

1889 Mar. 21	B	+0.15	-0.9
22	E	+ .06	-0.4
23	B	- .03	+0.7
29	E	+ .17	-1.8
Apr. 2	B	+ .09	+0.9
Mean.....		+0.088	-0.30
Corr.....			+0.09

Circle East.

1890 Mar. 12	B	+0.14	-0.1
17	B	+ .08	+0.4
26	B	+ .22	+0.1
Apr. 4	B	+ .07	+0.8
10	B	+ .10	+0.6
16	B	+ .06	+0.6
Mean.....		+0.112	+0.40
Corr.....			-1.07

421. GR. 1586, S. P.

Circle West.

1888 Aug. 16	B	+0.04	-0.4
17	E	- .06	+0.2
20	B	+ .23	+0.9
21	E	+ .06	-1.3
22	B	- .08	+0.4
23	E	+ .09	+0.2
Mean.....		+0.047	0.00
Corr.....			+0.31

Circle East.

1889 Aug. 24	B	+0.11	+2.5
27	B	+ .23	+2.1
29	E	- .04	+1.8
Sept. 20	B	+ .12	+1.1
21	B	+ .29	+3.2
27	B	+ .07	+2.2
Mean.....		+0.130	+2.15
Corr.....			-1.22

422. 19 LEONIS MINORIS.

$\alpha = 9 \ 50 \ 56.796.$ $\delta = 41 \ 34 \ 44.87.$

Circle West.

1889 Mar. 21	B	+0.01	-0.5
22	E	+ .04	-0.8
23	B	+ .02	+1.0
29	E	.00	-2.6
Apr. 2	B	+ .02	-0.2
Mean.....		+0.018	-0.62
Corr.....			+0.16

Circle East.

1890 Mar. 17	B	+0.04	-0.3
21	B	- .02	+0.3
26	B	- .01	-0.2
31	B	- .01	+0.9
Apr. 1	B	- .02	+0.2
17	B	+ .11	-0.2
Mean.....		+0.015	+0.12
Corr.....			-0.85

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
423. π LEONIS.				Apr. 19	B	— .06	+0.4
$\alpha = 9 \ 54 \ 24.020. \ \delta = 8 \ 34 \ 18.07.$				20	B	— .10	+0.4
<i>Circle West.</i>				Mean .....	.....	—0.085	+0.33
				Corr. ....	.....	.....	—0.56
1889 Mar. 19	B	+0.01	—0.9	146. α LEONIS.			
21	B	+ .01	—0.8	$\alpha = 10 \ 2 \ 30.807. \ \delta = 12 \ 30 \ 16.46.$			
22	E	+ .01	—1.3	<i>Circle West.</i>			
23	B	+ .06	—0.6	1889 Mar. 19	B	0.00	—0.9
29	E	+ .04	—3.0	20	B	+ .04	—1.4
Mean.....	.....	+0.026	—1.32	Apr. 2	B	+ .02	—0.5
Corr. ....	.....	.....	+0.64	15	E	— .01	—1.0
<i>Circle East.</i>				Mean .....	.....	+0.012	—0.95
1890 Mar. 12	B	0.00	—0.7	Corr. ....	.....	.....	+0.50
17	B	+ .03	—0.5	<i>Circle East.</i>			
26	B	+ .04	—0.3	1890 Mar. 17	B	+0.03	—0.6
31	B	+ .06	+0.3	28	B	+ .05	—0.5
Apr. 1	B	+ .01	—0.3	31	B	+ .04	+0.2
10	B	+ .03	—0.6	Apr. 1	B	+ .03	.....
Mean.....	.....	+0.028	—0.35	4	B	+ .03	0.0
Corr.....	.....	.....	—0.42	Mean .....	.....	+0.036	—0.22
145. η LEONIS.				Corr.....	.....	.....	—0.64
$\alpha = 10 \ 1 \ 20.208. \ \delta = 17 \ 17 \ 55.43.$				147. λ URSAE MAJORIS.			
<i>Circle West.</i>				$\alpha = 10 \ 10 \ 27.709. \ \delta = 43 \ 27 \ 47.71.$			
1889 Apr. 19	B	—0.08	—1.4	<i>Circle West.</i>			
Corr.....	.....	.....	+0.87	1889 Mar. 19	B	—0.02	+0.9
<i>Circle East.</i>				20	B	+ .06	—0.1
1890 Mar. 21	B	—0.08	—0.2	Apr. 2	B	+ .03	+1.3
Apr. 10	B	— .12	+0.2	5	E	— .03	0.0
16	B	— .08	+0.9	19	B	.00	+0.9
17	B	— .07	+0.3	Mean		+0.008	+0.60
				Corr.....			—0.01

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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<i>Circle East.</i>				149. μ URSAE MAJORIS.			
				$\alpha = 10 \ 15 \ 46.513. \ \delta = 42 \ 3 \ 8.72.$			
				<i>Circle West.</i>			
1890 Mar. 17	B	+0.02	+0.7	1889 Mar. 23	B	-0.03	+0.6
21	B	+ .02	+1.3	Apr. 4	B	- .01	+0.8
26	B	- .03	+0.5	5	E	- .01	-0.2
28	B	.00	+1.1	15	E	+ .01	+0.5
31	B	+ .02	+1.2	Mean		-0.010	+0.42
Apr. 1	B	- .01	+0.9	Corr.			+0.05
10	B	+ .02	+1.0	<i>Circle East.</i>			
Mean		+0.006	+0.96	1890 Mar. 17	B	0.00	+0.5
Corr.			-0.46	21	B	- .02	+0.5

148. ζ LEONIS.							
				$\alpha = 10 \ 10 \ 34.315. \ \delta = 23 \ 57 \ 55 \ 17.$			
				<i>Circle West.</i>			
1889 Mar. 21	B	+0.03	-0.8	1890 Mar. 17	B	0.00	+0.5
22	E	.00	-0.8	21	B	- .02	+0.5
29	E	+ .07	-1.9	31	B	- .06	+0.9
Apr. 4	B	+ .03	-1.1	Apr. 4	B	- .02	+0.8
15	E	+ .02	-0.8	17	B	- .03	+0.8
Mean		+0.030	-1.08	19	B	- .05	+0.3
Corr.			+0.28	20	B	.00	+0.2
<i>Circle East.</i>				Mean		-0.026	+0.57
1890 Mar. 12	B	-0.03	-1.1	Corr.			-0.77
Apr. 16	B	+ .01	-0.9	424. 30 H. URSAE MAJORIS.			
17	B	+ .03	-0.6				
19	B	+ .04	-0.3	$\alpha = 10 \ 16 \ 11.594. \ \delta = 66 \ 7 \ 20.74.$			
20	B	+ .03	-0.8	<i>Circle West.</i>			
Mean		+0.016	-0.74	1889 Mar. 19	B	+0.10	+0.2
Corr.			-0.42	20	B	+ .07	-0.3
				21	B	+ .05	-0.4
				22	E	+ .06	+0.3
				29	E	+ .05	-2.0
				Mean		+0.066	-0.44
				Corr.			-0.07

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				425. 30 H. CAMELOPARDI.			
				$\alpha = 10 \ 17 \ 37.110. \ \delta = 83 \ 7 \ 4.07.$			
				<i>Circle West.</i>			
1890 Mar. 12	B	+0.07	-0.3	1889 Mar. 21	B	-0.01	-0.4
26	B	+ .06	+0.3	22	E	+ .07	+0.6
28	B	+ .14	+0.5	23	B	- .12	+0.4
Apr. 1	B	+ .11	+0.3	29	E	+ .06	-1.2
10	B	+ .09	+0.2	Apr. 2	B	.00	+0.5
16	B	+ .08	+0.3	Mean .....	.....	0.000	-0.02
Mean.....	.....	+0.092	+0.22	Corr.....	.....	.....	-0.37
Corr.....	.....	.....	-1.02	<i>Circle East.</i>			
424. 30 H. URSÆ MAJORIS, S. P.				1890 Mar. 17	B	+0.01	+0.7
<i>Circle West.</i>				21	B	+ .09	+0.5
1888 Aug. 3	B	-0.03	+0.8	31	B	+ .38	+0.5
6	B	+ .09	-0.4	Apr. 4	B	+ .20	+0.4
16	B	+ .09	+0.8	10	B	+ .35	+0.5
17	E	+ .04	-0.4	16	B	+ .16	+0.2
23	E	+ .15	+0.3	Mean .....	.....	+0.198	+0.47
27	E	+ .10	-1.0	Corr.....	.....	.....	-0.68
Mean.....	.....	+0.073	+0.02	425. 30 H. CAMELOPARDI, S. P.			
Corr.....	.....	.....	-0.26	<i>Circle West.</i>			
<i>Circle East.</i>				1888 Aug. 6 ¹	B	+0.22	0.0
1889 Aug. 2	B	-0.02	+0.8	16	B	+ .17	-0.2
4	E	- .11	+1.5	20	B	- .01	+1.1
5	B	- .04	+1.7	21	E	- .18	-1.5
15	E	+ .02	+2.1	22	B	- .45	+0.4
21	B	+ .15	+1.9	23	E	+ .31	+0.7
22	E	- .10	+1.8	24	B	- .13	-0.1
Mean.....	.....	-0.017	+1.63	Mean .....	.....	-0.010	+0.06
Corr.....	.....	.....	-0.85	Corr.....	.....	.....	-0.03

¹ Transit on two threads.

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				427. 36 URSAE MAJORIS.			
				$\alpha = 10 \ 23 \ 35.069. \ \delta = 56 \ 32 \ 39.75.$			
				<i>Circle West.</i>			
1889 Aug. 2	B	+0.03	+1.6	1889 Mar. 21	B	0.00	-0.8
4	E	- .42	+1.0	22	E	+ .02	+0.1
5	B	- .18	+1.4	23	B	- .02	0.0
15	E	+ .08	+2.1	29	E	+ .09	-1.5
21	B	- .05	+1.4	Apr. 2	B	+ .02	+0.4
22	E	- .17	+1.6	15	E	.00	0.0
Mean		-0.118	+1.52	Mean.....		+0.018	-0.30
Corr			-0.87	Corr			+0.05
426. 31 LEONIS MINORIS.				<i>Circle East.</i>			
$\alpha = 10 \ 21 \ 31.325. \ \delta = 37 \ 16 \ 14.63.$							
<i>Circle West.</i>							
1889 Mar. 19	B	0.00	-0.9	1890 Mar. 17	B	+0.01	+0.1
21	B	+ .04	-1.8	21	B	.00	.....
22	E	.00	-0.6	26	B	+ .02	+0.4
23	B	+ .07	-0.6	31	B	+ .06	+1.0
29	E	+ .03	-2.6	Apr. 4	B	+ .06	+1.0
Apr. 5	E	.00	-1.3	16	B	+ .05	+0.7
Mean		+0.023	-1.30	17	B	+ .05	+0.1
Corr			+0.53	Mean.....		+0.036	+0.55
<i>Circle East.</i>				Corr			-0.81
				150. 9 H. DRACONIS.			
				$\alpha = 10 \ 25 \ 43.700. \ \delta = 76 \ 16 \ 45.47.$			
				<i>Circle West.</i>			
1890 Mar. 12	B	-0.03	-0.7	1889 Mar. 19	B	+0.30	+0.7
26	B	+ .04	-0.5	20	B	+ .11	+0.1
31	B	+ .02	0.0	21	B	+ .18	-0.7
Apr. 1	B	+ .04	-0.3	22	E	+ .09	+0.8
10	B	- .02	-0.4	23	B	+ .14	+0.2
16	B	- .03	0.0	29	E	+ .23	-1.6
Mean.....		+0.003	-0.32	Apr. 2	B	+ .13	+0.9
Corr			-0.62				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Apr. 4	B	+0.24	+1.2	Aug. 24	B	+ .13	-0.1
5	E	+ .27	+0.2	27	E	+ .04	-0.3
13	B	+ .46	+0.1	29	B	+ .08	-0.4
15	E	+ .23	+0.5	31	E	+ .22	+0.7
Mean		+0.216	+0.22	Sept. 1	B	+ .16	+0.7
Corr			-0.01	4	E	+ .11	.....
<i>Circle East.</i>				91 Sept. 16	F	+ .25	-0.7
1890 Mar. 12	B	+0.19	+0.8	17	F	+ .14	+0.5
17	B	+ .19	+0.5	19	F	+ .28	0.0
26	B	+ .15	+0.9	21	F	+ .40	+0.1
28	B	+ .32	+1.0	22	F	+ .08	+0.6
31	B	+ .37	+1.7	Oct. 22	F	+ .16	.....
Apr. 1	B	+ .23	+0.7	23	F	+ .24	+1.3
4	B	+ .29	+1.4	Mean		+0.174	+0.08
10	B	+ .17	+1.2	Corr.			-0.02
16	B	+ .22	.....	<i>Circle East.</i>			
17	B	+ .27	.....	1889 Aug. 2	B	+0.11	+1.1
19	B	+ .19	+1.3	5	B	+ .12	+1.8
20	B	+ .16	+1.2	15	E	+ .29	+1.5
Mean.....		+0.229	+1.07	21	B	+ .20	+1.2
Corr			-1.09	22	E	- .14	+1.6
150. 9 H. DRAGONIS, S. P.				24	B	+ .22	+1.8
<i>Circle West.</i>				27	B	+ .26	+2.2
1888 Aug. 3	B	+0.18	+0.1	29	E	- .04	+1.4
6	B	+ .34	-0.7	Sept. 20	B	+ .23	-0.1
8	E	+ .18	-0.1	21	B	+ .10	+2.2
16	B	+ .19	0.0	27	B	+ .19	+1.3
17	E	+ .12	+0.5	91 Sept. 23	F	+ .12	+1.3
20	B	+ .14	+0.6	25 ¹	F	+ .19	[+1.4]
21	E	+ .19	-1.5	Oct. 9	F	+ .20	+0.4
22	B	- .05	+0.8	10	F	+ .29	.....
23	E	+ .24	-0.6	12	F	+ .31	.....
				15	F	+ .36	.....

¹ Tel. mic. diminished 0.2 rev.

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Oct. 19	F	+ .23	+1.1	Apr. 2	B	- .17	+0.6
20	F	+ .13	.....	5	E	- .02	-0.7
21	F	+ .21	0.0	13	B	+ .06	-1.6
Mean.....		+0.179	+1.25	Mean.....		-0.083	-0.33
Corr.....			-1.17	Corr.....			+0.22

Circle East.

428. 37 URSAE MAJORIS.

 $\alpha = 10 \ 28 \ 4.359. \ \delta = 57 \ 38 \ 56.37.$ *Circle West.*

1889 Mar. 21	B	+0.10	-0.5
22	E	+ .07	+0.1
23	B	+ .10	-0.1
29	E	+ .12	-1.4
Apr. 2	B	+ .12	+0.4
5	E	+ .05	+0.2
Mean.....		+0.093	-0.22
Corr.....			+0.05

Circle East.

1890 Mar. 12	B	+0.03	0.0
28	B	+ .15	+0.2
Apr. 4	B	+ .09	+0.4
10	B	+ .12	+0.4
16	B	+ .10	+0.8
17	B	+ .08	+0.5
Mean.....		+0.095	+0.38
Corr.....			-0.88

429. 35 H. URSAE MAJORIS.

 $\alpha = 10 \ 35 \ 11.218. \ \delta = 69 \ 39 \ 4.29.$ *Circle West.*

1889 Mar. 20	B	-0.11	0.0
21	B	- .14	-0.6
22	E	- .12	+0.3

1890 Mar. 12	B	- .14	+0.8
17	B	- .09	+1.5
31	B	- .13	+1.9
Apr. 4	B	- .08	+1.5
10	B	- .06	+1.9
16	B	- .09	+2.2
Mean.....		-0.098	+1.63
Corr.....			-1.44

429. 35 H. URSAE MAJORIS, S. P.

Circle West.

1888 Aug 16	B	-0.03	-0.2
20	B	- .22	+0.3
27	E	- .14	-0.4
29	B	- .20	-0.9
31	E	- .11	0.0
Sept. 1	B	- .14	-0.3
Mean.....		-0.140	-0.25
Corr.....			-0.12

Circle East.

1889 Aug. 24	B	-0.17	+1.2
27	B	- .05	+1.4
29	E	- .34	+0.3
Sept. 20	B	- .11	-0.3
21	B	- .04	+1.4
27	B	- .13	+1.6
Mean.....		-0.140	+0.93
Corr.....			-0.92

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
430. 41 LEONIS MINORIS. $\alpha = 10 \ 37 \ 26.076. \ \delta = 23 \ 45 \ 50.70.$ <i>Circle West.</i>				<i>Circle East.</i>			
1889 Mar. 23	B	+0.06	+0.1	1890 Mar. 12	B	-0.03	-0.4
29	E	+ .03	-1.0	17	B	+ .03	-0.7
Apr. 2	B	+ .02	-0.2	Apr. 10	B	+ .03	-0.7
4	B	+ .03	-0.4	16	B	+ .04	-0.1
5	E	+ .02	-1.9	17	B	+ .02	-0.3
13	B	.....	-1.4	19	B	+ .03	-0.4
15	E	- .01	-0.5	Mean .....	.....	+0.020	-0.43
Mean.....	.....	+0.025	-0.76	Corr.....	.....	.....	-0.61
Corr.....	.....	.....	+0.28	432. 1 LEONIS. $\alpha = 10 \ 43 \ 28.526. \ \delta = 11 \ 7 \ 37.35.$ <i>Circle West.</i>			
<i>Circle East.</i>				1888 Mar. 19	B	+0.05	-0.7
1890 Mar. 26	B	+0.08	-0.3	22	E	.00	-0.4
Apr. 4	B	+ .07	-0.6	23	B	+ .05	-1.1
16	B	.00	-0.1	29	E	+ .02	-1.6
17	B	+ .04	-0.4	Apr. 4	B	+ .02	-1.0
19	B	+ .06	-0.1	5	E	.00	-1.1
20	B	+ .02	-0.2	Mean.....	.....	+0.023	-0.98
Mean .....	.....	+0.045	-0.28	Corr.....	.....	.....	+0.51
Corr.....	.....	.....	-0.41	<i>Circle East.</i>			
431. 42 LEONIS MINORIS. $\alpha = 10 \ 39 \ 44.856. \ \delta = 31 \ 15 \ 41.81.$ <i>Circle West.</i>				1890 Mar. 17	B	+0.01	-0.4
1889 Mar. 21	B	+0.02	-1.6	Apr. 4	B	- .01	+0.1
22	E	+ .04	-0.7	10	B	+ .01	0.0
29	E	+ .02	-1.9	16	B	+ .02	+0.5
Apr. 4	B	- .02	-0.6	17	B	- .01	+0.3
5	E	+ .01	-1.9	20	B	+ .03	+0.4
13	B	+ .07	.....	Mean.....	.....	+0.008	+0.15
Mean.....	.....	+0.023	-1.34	Corr.....	.....	.....	-0.60
Corr.....	.....	.....	+0.18				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
152. 46 LEONIS MINORIS. $\alpha = 10\ 47\ 9.553.$ $\delta = 34\ 48\ 28.51.$ <i>Circle West.</i>				Apr. 10	B	— .01	+0.8
				16	B	— .12	+1.4
				17	B	— .11	+0.6
				Mean		—0.037	+1.00
				Corr.			—1.19
1889 Apr. 5	E	+0.03	—1.8	433. BR. 1508, S. P. <i>Circle West.</i>			
13	B	+ .07	—2.6	1888 Aug. 8	E	+0.01	—0.9
15	E	+ .05	—1.6	16	B	.03	+0.4
Mean		+0.050	—2.00	17	E	— .15	+0.7
Corr.			+0.51	20	B	— .08	+1.3
<i>Circle East.</i>				21	E	+ .16	—0.6
1890 Mar. 12	B	+0.02	—1.1	22	B	— .12	+0.6
17	B	— .01	—0.8	23	E	+ .08	—0.1
26	B	+ .09	.....	Mean		—0.019	+0.20
Apr. 4	B	+ .05	—0.6	Corr.			—0.05
10	B	+ .01	.....	<i>Circle East.</i>			
19	B	+ .03	—0.6	1889 Aug. 4	E	—0.35	+1.6
Mean		+0.032	—0.78	5		— .26	+1.7
Corr.			—0.70	15	E	— .09	+1.6
433. BR. 1508. $\alpha = 10\ 51\ 8.335.$ $\delta = 78\ 21\ 33.50.$ <i>Circle West.</i>				21	B	— .04	+2.1
1889 Mar. 19	B	+0.08	+0.1	22	E	— .31	+1.4
21	B	+ .04	—0.8	24	B	— .11	+1.7
23	B	— .02	—0.2	Mean		—0.193	+1.68
29	E	+ .16	—1.3	Corr.			—1.11
Apr. 5	E	— .12	—0.3	153. β URSAE MAJORIS. $\alpha = 10\ 55\ 12.074.$ $\delta = 56\ 58\ 19.05.$ <i>Circle West.</i>			
15	E	— .16	0.0	1889 Mar. 19	B	—0.04	0.0
Mean		—0.003	—0.42	21	B	+ .04	—0.6
Corr.			—0.19				
<i>Circle East.</i>							
1890 Mar. 17	B	—0.01	+0.9				
31	B	+ .08	+1.0				
Apr. 4	B	— .05	+1.3				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
Mar. 23	B	.00	-0.5	434. χ LEONIS.			
Apr. 2	B	+ .05	+0.8	$\alpha = 10 \ 59 \ 20.547. \quad \delta = 7 \ 55 \ 50.16.$			
5	E	- .08	0.0	<i>Circle West.</i>			
Mean.....		-0.006	-0.06				
Corr.			+0.09				
<i>Circle East.</i>							
1890 Mar. 12	B	-0.06	-0.4	1889 Mar. 21	B	+0.07	-2.2
26	B	+ .01	.....	22	E	+ .05	-0.9
28	B	- .05	+0.3	23	B	+ .08	-0.8
Apr. 19	B	+ .01	+0.5	Apr. 4	B	+ .08	-1.8
Mean.....		-0.022	+0.13	5	E	+ .01	-1.3
Corr.			-0.87	15	E	+ .03	-1.8
				Mean		+0.053	-1.47
				Corr			+0.65
				<i>Circle East.</i>			
154. α URSÆ MAJORIS.				1890 Mar. 12	B	+0.06	-0.7
$\alpha = 10 \ 56 \ 56.184. \quad \delta = 62 \ 20 \ 41.03.$				28	B	+ .07	-0.6
<i>Circle West.</i>				31	B	+ .01	0.0
				Apr. 10	B	+ .03	-1.3
				16	B	+ .07	-0.3
				17	B	+ .10	-0.9
1889 Apr. 13	B	-0.01	-1.2	Mean		+0.057	-0.63
15	E	- .06	+0.1	Corr			-0.37
Mean		-0.035	-0.55				
Corr			-0.15	155. ψ URSÆ MAJORIS.			
<i>Circle East.</i>				$\alpha = 11 \ 3 \ 28.712. \quad \delta = 45 \ 5 \ 42.44.$			
				<i>Circle West.</i>			
1890 Mar. 17	B	-0.02	+0.1	1889 Mar. 21	B	0.00	-0.7
31	B	.00	+0.8	Apr. 2	B	- .03	.....
Apr. 4	B	.00	+0.3	13	B	+ .04	-1.4
10	B	- .03	+0.7	Mean		+0.003	-1.05
20	B	+ .03	+0.6	Corr			+0.36
Mean		-0.004	+0.50				
Corr			-0.82				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>							
1890 Apr. 4	B	-0.05	+0.8	Apr. 15	B	+ .05	-1.4
10	B	- .03	+1.0	19	B	+ .02	-1.7
17	B	+ .02	+0.9	Mean		+0.032	-1.82
19	B	- .05	+1.5	Corr.....			+0.82
20	B	- .03	+1.4	<i>Circle East.</i>			
Mean		-0.028	+1.12	1890 Mar. 17	B	+0.03	-0.2
Corr			-0.81	Apr. 4	B	.00	-0.3

156. δ LEONIS. $\alpha = 11 \ 8 \ 15.503.$ $\delta = 21 \ 7 \ 34.84.$ *Circle West.*

1889 Mar. 19	B	+0.04	-1.2
22	E	- .02	-0.6
23	B	.00	-1.2
Apr. 2	B	- .08	.....
4	B	+ .01	-1.3
5	E	- .02	-1.0
13	B	+ .01	-2.9
Mean		-0.009	-1.37
Corr			+0.45

Circle East.

1890 Mar. 12	B	-0.01	-0.7
31	B	- .04	-0.7
Apr. 17	B	+ .03	-0.9
20	B	- .01	-0.4
Mean		-0.008	-0.68
Corr			-0.41

157. γ LEONIS. $\alpha = 11 \ 8 \ 28.049.$ $\delta = 16 \ 1 \ 50.82.$ *Circle West.*

1889 Mar. 21	B	0.00	-2.0
29	E	+ .06	-2.2

Apr. 15	B	+ .05	-1.4
19	B	+ .02	-1.7
Mean		+0.032	-1.82
Corr.....			+0.82

Circle East.

1890 Mar. 17	B	+0.03	-0.2
Apr. 4	B	.00	-0.3
10	B	- .05	-0.5
19	B	+ .05	+0.3
Mean.....		+0.008	-0.18
Corr.....			-0.89

435. GR. 1757.

 $\alpha = 11 \ 10 \ 29.857.$ $\delta = 50 \ 4 \ 35.62.$ *Circle West.*

1889 Mar. 21	B	+0.02	-1.7
22	E	- .03	-0.1
29	E	- .07	-1.2
Apr. 4	B	- .08	-0.6
5	E	- .11	-0.2
13	B	+ .05	-2.4
Mean		-0.037	-1.03
Corr.....			+0.04

Circle East.

1890 Mar. 17	B	-0.06	+0.7
31	B	- .09	+0.8
Apr. 10	B	.00	+0.3
16	B	.00	+1.5
17	B	.00	+0.6
19	B	- .04	+1.2
Mean.....		-0.032	+0.85
Corr.....			-1.15

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
158. ξ URSAE MAJORIS <i>med.</i>				<i>Circle East.</i>			
$\alpha = 11 \ 12 \ 18.830. \ \delta = 32 \ 8 \ 52.68.$							
<i>Circle West.</i>							
1889 Apr. 5	E	+0.03	-0.6	1890 Mar. 31	B	+0.04	-0.9
13	B	+ .13	-2.7	Apr. 10	B	+ .02	-0.9
19	B	+ .05	-0.1	20	B	- .01	+0.3
Mean.....		+0.070	-1.13	Mean.....		+0.017	-0.50
Corr.....			+0.19	Corr.....			-0.36
159. ν URSAE MAJORIS.				436. GR. 1771.			
$\alpha = 11 \ 12 \ 32.345. \ \delta = 33 \ 41 \ 40.11.$				$\alpha = 11 \ 16 \ 18.669. \ \delta = 64 \ 55 \ 56.43.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1889 Mar. 22	E	-0.13	-1.0	1889 Mar. 21	B	+0.25	+0.1
23	B	- .17	-0.8	22	E	+ .22	+0.7
Apr. 15	E	- .13	-0.7	23	B	+ .23	+1.0
25	B	- .08	.....	29	E	+ .26	+0.4
Mean.....		-0.128	-0.83	Apr. 5	E	+ .11	+0.4
Corr.....			+0.36	13	B	+ .33	-1.6
<i>Circle East.</i>				Mean.....		+0.233	+0.17
1890 Mar. 17	B	-0.12	0.0	Corr.....			-0.12
Apr. 4	B	- .15	-0.2	<i>Circle East.</i>			
17	B	- .12	+0.2	1890 Mar. 12	B	+0.23	+0.9
Mean.....		-0.130	0.00	17	B	+ .20	+0.6
Corr.....			-0.79	Apr. 4	B	+ .18	+1.0
160. σ LEONIS.				16	B	+ .33	+1.8
$\alpha = 11 \ 15 \ 27.870. \ \delta = 6 \ 37 \ 55.41.$				17	B	+ .26	+0.8
<i>Circle West.</i>				19	B	+ .24	+1.3
1889 Apr. 4	B	0.00	-1.3	Mean.....		+0.240	+1.07
19	B	- .05	-0.9	Corr.....			-1.00
25	B	+ .01	.....				
Mean.....		-0.013	-1.10				
Corr.....			+0.46				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
436. GR. 1771, S. P.				437. 58 URSAE MAJORIS.			
<i>Circle West.</i>				$\alpha = 11 \ 24 \ 33.922. \ \delta = 43 \ 46 \ 37.15.$			
				<i>Circle West.</i>			
1887 Nov. 2	B	.....	-1.7	1889 Mar. 22	E	+0.01	+0.1
88 Aug. 16	B	+0.17	+0.2	23	B	+ .08	-0.5
21	E	+ .28	-1.3	29	E	+ .02	-0.7
22	B	+ .02	+0.9	Apr. 4	B	+ .02	+0.1
27	E	+ .33	+0.3	5	E	+ .03	-0.6
29	B	+ .09	-1.7	13	B	+ .06	-2.9
31	E	+ .39	0.0	Mean .....	.....	+0.037	-0.75
Mean .....	.....	+0.213	-0.47	Corr. ....	.....	.....	+0.11
Corr. ....	.....	.....	-0.23	<i>Circle East.</i>			
<i>Circle East.</i>							
1889 Aug. 2	B	+0.20	+1.6	1890 Mar. 12	B	-0.02	+0.1
4	E	+ .06	+0.6	17	B	.00	+0.2
5	B	+ .11	+0.5	Apr. 10	B	.00	+0.1
15	E	+ .21	+1.2	16	B	+ .01	+0.9
21	B	+ .20	-0.4	17	B	+ .01	+1.1
22	E	+ .16	+2.3	20	B	.00	+0.5
Mean .....	.....	+0.157	+0.97	Mean .....	.....	0.000	+0.48
Corr. ....	.....	.....	-0.88	Corr. ....	.....	.....	-0.51
161. ι LEONIS.				162. λ DRACONIS.			
$\alpha = 11 \ 18 \ 11.352. \ \delta = 11 \ 8 \ 6.43.$				$\alpha = 11 \ 24 \ 52.209. \ \delta = 69 \ 56 \ 17.26.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Apr. 24	E	-0.04	-0.5	1888 Apr. 24	E	+0.10	0.0
89 Apr. 4	B	+ .08	-1.6	89 Mar. 21	B	- .12	-1.4
19	B	.00	-0.8	Apr. 15	E	- .07	-0.4
25	B	+ .01	.....	19	B	- .10	-1.0
Mean .....	.....	+0.012	-0.97	21	E	+ .02	+0.4
Corr. ....	.....	.....	+0.51	25	B	+ .05	.....
<i>Circle East.</i>				Mean .....	.....	-0.020	-0.48
				Corr.			+0.29
1890 Mar. 17	B	+0.07	-0.7				
Corr.			-0.60				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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<i>Circle East.</i>				438. ν LEONIS.			
				$\alpha = 11 \ 31 \ 18.977. \ \delta = -0 \ 12 \ 59.36.$			
				<i>Circle West.</i>			
1889 May 3	B	-0.05	+0.3	1889 Mar. 22	E	+0.05	-0.4
6	E	-.13	+0.9	23	B	.00	-0.9
90 Mar. 28	B	-.03	+1.0	29	E	+.03	-0.7
31	B	-.10	+0.9	Apr. 4	B	+.03	-0.8
Apr. 4	B	-.04	+0.9	5	E	-.01	-0.7
Mean		-0.070	+0.80	13	B	+.03	-2.1
Corr			-1.43	Mean		+0.022	-0.93
				Corr			+0.25

162. λ DRACONIS, S. P.				<i>Circle East.</i>			
<i>Circle West.</i>							
1887 Nov. 2	B	.....	-0.8	1890 Mar. 12	B	+0.03	0.0
3	B	.....	-0.4	31	B	+.07	-0.1
88 Aug. 16	B	-0.15	+0.4	Apr. 4	B	+.08	-0.4
17	E	.00	+0.5	10	B	+.01	-1.1
20	B	-.03	+0.1	16	B	+.06	-0.2
22	B	-.09	+0.8	17	B	+.08	0.0
27	E	+.04	-0.4	Mean		+0.055	-0.30
29	B	-.10	-0.9	Corr			-0.21
31	E	-.06	+0.1				
Sept. 5	E	-.23	-0.1	439. 3 DRACONIS.			
6	B	-.31	-0.2	$\alpha = 11 \ 36 \ 20.127. \ \delta = 67 \ 21 \ 13.37.$			
8	E	+.05	+0.4	<i>Circle West.</i>			
Mean		-0.088	-0.04				
Corr			-0.13				
<i>Circle East.</i>							
1889 Aug. 5	B	-0.09	+0.4	1889 Mar. 22	E	-0.17	+0.2
29	E	-.34	+0.1	23	B	-.20	+0.7
Sept. 20	B	-.17	+1.3	29	E	-.20	-0.8
Mean		-0.200	+0.60	Apr. 5	E	-.04	-1.2
Corr			-0.94	13	B	+.02	-2.1
				19 ¹	B	-.13	[0.0]
				Mean		-0.120	-0.64
				Corr			-0.14

¹ Tel. mic. increased 0.1 rev,

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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Circle East.

1890 Mar. 17	B	-0.14	+0.7
28	B	-.08	+1.0
31	B	-.13	+0.6
Apr. 4	B	-.10	+0.9
10	B	-.09	+0.8
16	B	-.09	+1.9
Mean		-0.105	+0.98
Corr.			-1.17

439. 3 DRACONIS, S. P.

Circle West.

1888 Aug. 22	B	-0.13	+0.4
29	B	-.14	-0.2
Sept. 4	E	-.25	-0.1
5	E	-.28	+0.4
6	B	-.23	+0.2
8	E	-.05	+0.5
Mean		-0.180	+0.2)
Corr.			-0.21

Circle East.

1889 Aug. 2	B	-0.06	+0.9
4	E	-.37	+0.6
5	B	-.14	+1.7
15	E	-.19	+0.3
21	B	-.21	-0.7
22	E	-.18	+2.3
Mean		-0.192	+0.85
Corr.			-0.81

163. χ URSAE MAJORIS.

$$\alpha = 11 \ 40 \ 14.465. \quad \delta = 48 \ 23 \ 21.44.$$

Circle West.

1888 Apr. 24	E	+0.01	+1.0
89 Mar. 21	B	-.01	-0.5
22	E	-.07	-0.1
Apr. 19	B	-.03	-0.8
21	E	-.07	0.0
Mean		-0.034	-0.08
Corr.			+0.13

Circle East.

1889 Apr. 30	E	-0.07	+0.5
May 3	B	.00	+1.2
6	E	-.15	+0.5
90 Mar. 12	B	-.01	+0.8
17	B	-.15	+0.6
28	B	-.03	+1.4
31	B	-.03	+0.1
Apr. 4	B	+.13	+1.0
10	B	-.01	.....
20	B	-.07	+0.6
Mean		-0.039	+0.74
Corr.			-1.00

164. β LEONIS.

$$\alpha = 11 \ 43 \ 26.913. \quad \delta = 15 \ 11 \ 13.05.$$

Circle West.

1888 Apr. 24	E	+0.02	+1.5
89 Mar. 19	B	+.02	-1.1
Apr. 15	E	.00	-0.6
21	E	+.01	-1.6
25	B	-.04	.....
Mean		+0.002	-0.45
Corr.			+0.68

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				166. γ URSAE MAJORIS. $\alpha = 11\ 48\ 2.592.$ $\delta = 54\ 18\ 22.74.$			
1889 May 3	B	+0.02	+0.2	<i>Circle West.</i>			
6	E	+ .03	-0.2	1889 Mar. 23	B	-0.10	+0.4
90 Apr. 10	B	+ .04	-0.1	29	E	- .05	-0.8
17	B	+ .06	+0.1	Apr. 5	E	+ .01	-1.2
Mean		+0.038	0.00	15	E	- .02	+0.1
Corr.			-0.81	21	E	- .03	+0.1
165. β VIRGINIS. $\alpha = 11\ 44\ 57.889.$ $\delta = 2\ 23\ 4.36.$				25	B	+ .04	.....
<i>Circle West.</i>				Mean		-0.025	-0.28
1889 Mar. 21	B	-0.05	-0.7	Corr			+0.16
23	B	+ .04	+0.1	<i>Circle East.</i>			
29	E	+ .10	-1.2	1889 Apr. 30	E	-0.03	+0.3
Apr. 5	E	+ .06	-2.2	May 3	B	+ .01	+1.6
13	B	+ .03	-2.2	90 Mar. 28	B	- .03	+1.1
19	B	+ .05	-1.3	31	B	- .04	+0.6
Mean		+0.038	-1.25	Apr. 4	B	+ .01	.....
Corr			+0.17	10	B	- .03	+0.9
<i>Circle East.</i>				16	B	- .01	+1.6
1889 Apr. 30	E	+0.05	-1.4	17	B	- .02	+1.5
May 6	E	+ .05	-0.8	Mean		-0.018	+1.09
90 Mar. 12	B	+ .05	-0.6	Corr			-0.73
17	B	+ .06	-0.3	167. $\circ$ VIRGINIS. $\alpha = 11\ 59\ 36.354.$ $\delta = 9\ 20\ 38.13.$			
28	B	+ .02	-0.2	<i>Circle West.</i>			
31	B	+ .02	-0.7	1889 Mar. 22	E	0.00	-1.0
Apr. 4	B	+ .07	.....	Apr. 13	B	- .01	-2.6
20	B	+ .08	-0.2	19	B	- .03	-1.8
Mean		+0.050	-0.60	21	E	- .02	-1.5
Corr			-0.21	Mean		-0.015	-1.72
				Corr			+0.59

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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<i>Circle East.</i>				440. GR. 1852, S. P.			
				<i>Circle West.</i>			
1889 Apr. 30 ¹	E	+0.01	[−0.8]	1888 Aug. 22	B	−0.14	+0.2
May 3	B	+ .02	+0.2	23	E	+ .09	+0.4
6	E	− .01	−0.4	29	B	− .09	−0.6
90 Apr. 16	B	.00	+0.4	Sept. 1	B	− .15	+0.1
17	B	.00	+0.1	4	E	− .32	+0.4
19	B	− .02	+0.5	5	E	− .17	+0.8
Mean.....		0.000	+0.16	Mean.....		−0.130	+0.22
Corr.....			−0.49	Corr.....			−0.06
¹ Tel. mic. diminished 0.172 rev. Microm. head probably read backwards				<i>Circle East.</i>			

440. GR. 1852.				1889 Aug. 2			
$\alpha = 11\ 59\ 39.145.$ $\delta = 77\ 31\ 15.31.$				4	E	− .06	+0.4
<i>Circle West.</i>				5	B	+ .08	+1.8
1888 Apr. 24	E	+0.15	+0.7	15	E	+ .07	+1.5
89 Mar. 19	B	+ .23	−0.6	21	B	− .07	+1.1
23	B	+ .02	+0.5	22	E	− .11	+1.6
29	E	+ .07	−0.5	Mean.....		−0.032	+1.30
Apr. 5	E	+ .28	−2.1	Corr.....			−1.12
15	E	+ .06	0.0	168 4 H. DRACONIS.			
Mean.....		+0.135	−0.33	$\alpha = 12\ 7\ 2.382.$ $\delta = 78\ 13\ 39.40.$			
Corr.....			−0.14	<i>Circle West.</i>			

<i>Circle East.</i>				1888 Apr. 24	E	+0.03	+0.3
1890 Mar. 12	B	+0.01	+0.6	89 Mar. 22	E	+ .13	+0.5
17	B	− .01	+1.0	23	B	− .11	+0.5
28	B	+ .07	+1.3	Apr. 5	E	+ .12	−1.9
31	B	+ .14	+0.4	13	B	+ .13	−1.8
Apr. 4	B	− .05	+1.1	15	E	− .01	+0.4
10	B	+ .15	+1.2	19	B	+ .01	−0.5
Mean.....		+0.052	+0.93	21	E	− .03	+0.2
Corr.....			−1.19	Mean.....		+0.034	−0.29
				Corr.....			−0.19

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				<i>Circle East.</i>			
1889 Apr. 30	E	— .12	+0.6	1889 Aug. 4	E	—0.38	+1.1
May 3	B	+ .04	+1.1	5	B	+ .03	+2.1
90 Mar. 12	B	— .16	+0.1	15	E	— .02	+1.9
17	B	— .06	+0.5	21	B	— .04	+0.7
28	B	+ .06	+0.7	22	E	— .23	+1.8
31	B	+ .02	+0.1	24	B	+ .16	+2.2
Apr. 4	B	+ .04	+1.0	27	B	+ .12	+2.0
16	B	— .04	+1.1	29	E	— .19	+1.3
17	B	— .01	+0.6	Sept. 20	B	+ .09	+1.5
19	B	— .01	+1.0	21	B	+ .02	.....
Mean.....		—0.024	+0.68	27	B	+ .20	.....
Corr.....			—1.20	91 Oct. 9	F	+ .10	+1.9
168. 4 H. DRACONIS, S. P.				12	F	+ .01	.....
<i>Circle West.</i>				15	F	— .18	.....
1887 Nov. 3	B	.....	— 0.4	19	F	+ .02	.....
88 Aug. 22	B	—0.23	+1.0	21	F	— .04	.....
24	B	+ .09	+0.6	Mean		—0.021	+1.65
Sept. 1	B	— .29	+1.0	Corr			—1.11
4	E	— .38	+0.1	169. δ URSAE MAJORIS.			
5	E	— .22	0.0	$\alpha = 12\ 9\ 58.861.$ $\delta = 57\ 38\ 37.64.$			
6	B	— .42	+0.3	<i>Circle West.</i>			
8	E	— .09	+0.5	1888 May 14			
11	B	— .07	+0.6	B	—0.04	—0.1	
13	E	— .24	0.0	Corr			+0.05
19	B	— .10	.....	<i>Circle East.</i>			
23	E	— .18	.....	1890 Apr. 19			
91 Oct. 23	F	+ .09	.....	B	—0.07	+1.2	
Mean.....		—0.170	+0.37	Corr			—0.88
Corr			—0.06				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
441. 2 CANUM VEN.				Apr. 21	E	— .02	—0.2
$\alpha = 12 \ 10 \ 36.817. \ \delta = 41 \ 16 \ 21.49.$				Mean		+0.031	—0.07
Circle West.				Corr			+0.25
				Circle East.			
1889 Apr. 5	E	+0.06	—2.8	1889 Apr. 30	E	+0.09	—1.2
13	B	+ .04	—3.0	May 3	B	+ .09	+0.9
15	E	+ .02	—0.9	90 Mar. 12	B	+ .01	+0.1
19	B	— .04	—1.1	17	B	+ .04	—0.2
21	E	— .03	—1.2	28	B	+ .02	+0.3
25	B	+ .06	—0.7	31	B	+ .02	—0.8
Mean		+0.018	—1.62	Apr. 10	B	+ .04	.....
Corr			+0.24	16	B	+ .03	.....
Circle East.				17	B	+ .07	.....
1889 May 6	E	—0.08	+0.2	19	B	+ .08	0.0
90 Mar. 12	B	— .01	—0.3	Mean		+0.049	—0.13
17	B	— .10	+0.5	Corr			—0.20
Apr. 10	B	— .02	+0.2	442. 6 CANUM VEN.			
16	B	— .04	+1.1	$\alpha = 12 \ 20 \ 25.872. \ \delta = 39 \ 37 \ 43.84.$			
17	B	— .06	+0.5	Circle West.			
Mean		—0.052	+0.37	1888 Apr. 24	E	—0.13	+2.1
Corr			—0.89	May 14	E	— .08	0.0
170. η VIRGINIS				15	B	— .11	—0.6
$\alpha = 12 \ 14 \ 16.655. \ \delta = -0 \ 3 \ 20.07.$				16	E	— .15	+0.4
Circle West.				89 Mar. 22	E	— .08	+0.5
1888 Apr. 24	E	+0.03	+1.7	23	B	— .12	+0.6
May 14	B	+ .04	—0.4	Mean		—0.112	+0.50
16	E	+ .01	+0.2	Corr			+0.16
89 Mar. 22	E	+ .10	—0.1	Circle East.			
29	E	+ .02	+0.1	1889 Apr. 30	E	—0.04	0.0
Apr. 5	E	+ .06	—1.7	May 3	B	— .12	+1.6
13	B	+ .01	0.0	6	E	— .24	+0.5
15	E	+ .03	—0.2	90 Mar. 28	B	— .08	+1.3

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Mar. 31	B	— .12	+0.6	Apr. 13	B	— .08	—0.3
Apr. 4	B	— .12	+0.6	15	E	— .12	+0.6
Mean.....		—0.120	+0.77	19	B	— .10	—0.1
Corr.			—0.94	Mean		—0.083	—0.13
				Corr			—0.10

443. 20 COMAE BER.

 $\alpha = 12 \ 24 \ 11.749. \ \delta = 21 \ 30 \ 19.18.$ *Circle West.*

1888 May 14	B	—0.06	—2.0
16	E	— .10	—0.7
89 Mar. 29	E	— .06	—1.3
Apr. 15	E	— .12	—0.6
19	B	— .08	—1.1
21	E	— .08	—1.3
Mean.....		—0.083	—1.17
Corr.....			+0.43

Circle East.

1889 Apr. 30	E	—0.07	—1.3
May 6	E	— .14	—0.3
90 Mar. 12	B	— .12	—0.5
Apr. 16	B	— .12	+0.5
17	B	— .13	+0.1
19	B	— .09	+0.1
Mean.....		—0.112	—0.23
Corr.....			—0.39

444. 74 URSAE MAJORIS.

 $\alpha = 12 \ 24 \ 49.087. \ \delta = 59 \ 0 \ 39.86.$ *Circle West.*

1889 Mar. 22	E	—0.08	+0.3
23	B	— .06	+0.2
Apr. 5	E	— .06	—1.5

Circle East.

1889 May 3	B	—0.10	+1.4
6	E	— .19	+1.0
90 Mar. 28	B	— .10	+0.5
31	B	— .12	+0.2
Apr. 4	B	— .04	+0.4
10	B	— .19	+0.4
Mean		—0.123	+0.65
Corr			—0.85

444. 74 URSAE MAJORIS, S. P.

Circle West.

1888 Aug. 22	B	—0.10	0.0
23	E	— .07	+0.6
29	B	— .14	—0.2
Sept. 1	B	— .16	+2.7
4	E	— .14	—1.1
8	E	— .05	—0.2
Mean		—0.110	+0.30
Corr			—0.34

Circle East.

1889 Aug. 2	E	—0.16	—1.6
4	E	— .19	+0.8
15	E	— .05	+0.3
21	B	— .21	+1.3
22	E	— .29	+1.3
24	B	— .14	+0.4
Mean		—0.173	+0.42
Corr			—0.96

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
445. 8 CANUM VEN. $\alpha = 12 \ 28 \ 31.11. \ \delta = 41 \ 57 \ 18.72.$ <i>Circle West.</i>				171. κ DRACONIS, S. P. <i>Circle West.</i>			
1888 Apr. 24	E	+0.05	+1.1	1887 Nov. 3	B	.....	-2.8
89 Mar. 29	E	+ .02	-0.6	11	B	.....	-2.1
Apr. 5	E	+ .01	-1.2	88 Aug. 29	B	-0.05	-0.7
13	B	+ .01	-1.6	Sept. 12	B	.00	-0.1
15	E	- .01	0.0	Mean		-0.025	-1.42
19	B	- .03	+0.2	Corr			-0.06
Mean		+0.008	-0.35	<i>Circle East.</i>			
Corr			+0.08	1889 Oct. 9	B	+0.03	-0.3
<i>Circle East.</i>				13	B	- .12	+0.7
1889 Apr. 30	E	0.00	+0.6	Mean		-0.045	+0.20
May 6	E	- .10	+1.0	Corr			-0.92
90 Mar. 12	B	- .01	+0.3	446. 24 COMAE BER. seq. $\alpha = 12 \ 29 \ 36.746. \ \delta = 18 \ 58 \ 57.79.$ <i>Circle West.</i>			
28	B	- .03	+1.5	1889 Mar. 22	E	-0.09	-1.6
31	B	- .02	+0.8	23	B	.00	-1.1
Apr. 4	B	- .01	+1.1	29	E	- .02	-1.6
Mean		-0.028	+0.88	Apr. 15	E	- .05	-0.3
Corr			-0.80	19	B	+ .01	-1.2
171. κ DRACONIS. $\alpha = 12 \ 28 \ 47.035. \ \delta = 70 \ 23 \ 40.50.$ <i>Circle West.</i>				21	E	- .02	-1.1
1888 May 14	B	+0.07	-0.4	Mean		-0.028	-1.15
15	B	+ .07	-0.7	Corr			+0.59
16	E	- .05	-0.6	<i>Circle East.</i>			
Mean		+0.030	-0.57	1889 May 3	B	0.00	-0.1
Corr			+0.29	6	E	- .07	-0.5
<i>Circle East.</i>				90 Apr. 10	B	- .01	-0.6
1890 Mar. 17	B	+0.05	+1.8	16	E	- .06	0.0
Corr			-1.35	17	B	- .04	-0.1

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Apr. 19	B	— .04	—0.3	Sept. 6	B	— .14	—0.5
Mean		—0.037	—0.27	8	E	+ .01	+1.1
Corr			—0.41	Mean		—0.053	+0.05
				Corr			—0.21

447. 76 URSÆ MAJORIS.

$$\alpha = 12 \ 36 \ 45.491. \quad \delta = 63 \ 19 \ 1.36.$$

Circle West.

1888 Apr. 24	E	+0.08	—0.1
May 14	B	+ .09	0.0
15	B	+ .03	—0.4
16	E	— .06	—0.2
89 Mar. 29	E	+ .05	0.0
Apr. 15	E	— .06	+0.5
Mean		+0.022	—0.03
Corr			—0.19

Circle East.

1889 Apr. 30	E	—0.09	+0.7
May 3	B	+ .03	+1.6
6	E	— .13	+1.2
90 Mar. 17	B	— .08	+0.6
28	B	— .03	+1.4
Apr. 16	B	— .03	+1.4
Mean		—0.055	+1.15
Corr			—0.86

447. 76 URSÆ MAJORIS, S. P.

Circle West.

1888 Aug. 22	B	—0.07	+0.1
23	E	+ .03	+0.4
29	B	— .06	—0.7
Sept. 4	E	— .09	—0.1

Circle East.

1889 Aug. 2	B	—0.07	+1.1
4	E	— .17	—0.9
15	E	+ .03	+1.2
21	B	— .12	+0.8
24	B	+ .01	+0.9
29	E	— .25	+1.2
Mean		—0.095	+0.72
Corr			—0.85

173. ϵ URSÆ MAJORIS.

$$\alpha = 12 \ 49 \ 11.304. \quad \delta = 56 \ 33 \ 24.32.$$

Circle West.

1888 May 16	E	+0.05	+1.0
89 Apr. 21	E	+ .14	+1.1
Mean		+0.095	+1.05
Corr			+0.06

Circle East.

1889 May 3	B	+0.08	+2.6
6	E	.....	+1.7
27	B	+ .01	+1.5
31	B	.00	+2.0
90 Apr. 4	B	— .03	+1.9
16	B	— .04	+1.9
17	B	— .09	+2.2
Mean		—0.012	+1.97
Corr			—0.82

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
174. δ VIRGINIS.				448. δ DRACONIS.			
$\alpha = 12 \ 50 \ 3.709. \ \delta = 3 \ 59 \ 43.29.$				$\alpha = 12 \ 51 \ 5.814. \ \delta = 66 \ 2 \ 6.88.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 May 15	B	+0.06	-0.8	1888 May 19	B	-0.03	+0.1
25	B	+ .02	0.0	31	B	- .11	-0.4
89 Mar. 21	B	+ .03	.....	June 2	E	+ .02	+0.3
23	B	.00	-1.3	89 Mar. 22	E	- .19	+0.5
29	E	- .03	.....	Apr. 5	E	- .13	-0.1
Apr. 15	E	+ .02	-0.3	13	B	- .18	0.0
Mean		+0.017	-0.60	Mean.....		-0.103	+0.07
Corr.....			+0.14	Corr			-0.06
175. 12 CANUM VEN. seq.				<i>Circle East.</i>			
$\alpha = 12 \ 50 \ 52.920. \ \delta = 38 \ 54 \ 45.31.$				1889 Apr. 30	E	-0.13	+0.5
<i>Circle West.</i>				May 3	B	- .01	+1.8
1888 May 14	B	+0.06	-0.6	90 Mar. 31	B	- .13	+1.3
89 Mar. 21	B	.00	.....	Apr. 4	B	- .10	+1.0
29	E	- .02	-1.1	16	B	- .12	+0.9
Apr. 19	B	+ .06	-0.3	17	B	- .17	+1.2
25	B	.00	-0.4	Mean		-0.110	+1.12
Mean		+0.020	-0.60	Corr			-1.01
Corr.....			+0.26	448. δ DRACONIS, S. P.			
<i>Circle East.</i>				<i>Circle West.</i>			
1889 May 23	B	-0.01	-0.2	1887 Nov. 1	B	.....	-0.4
90 Mar. 12	B	- .08	+0.3	88 Aug. 29	B	-0.11	-0.4
17	B	+ .02	+0.2	Sept. 1	B	- .11	+0.2
28	B	+ .05	+0.8	4	E	- .22	+0.2
Apr. 10	B	- .02	+0.1	5	E	- .04	+0.7
Mean		+0.002	+0.24	8	E	- .04	-0.3
Corr.....			-0.88	11	B	- .15	-1.6
				Mean		-0.112	-0.23
				Corr			-0.26

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
<i>Circle East.</i>				Mar. 17	B	— .05	—0.1
1889 Aug. 24	B	—0.13	+0.8	28	B	+ .01	+0.5
27	B	+ .04	+0.8	31	B	+ .03	+0.2
29	E	— .30	+0.1	Apr. 4	B	+ .02	.....
Sept. 20	B	— .10	+0.7	10	B	.00	.....
27	B	— .04	+1.6	16	B	+ .04	.....
Oct. 1	B	— .06	0.0	17	B	— .01	.....
Mean.....		—0.098	+0.67	Mean.....		+0.002	—0.06
Corr.....			—0.86	Corr.....			—0.61

176. ϵ VIRGINIS. $\alpha = 12\ 56\ 42.072.$ $\delta = 11\ 33\ 1.70.$ *Circle West.*

1888 May 14	B	0.00	—1.0
15	B	— .01	—1.4
19	B	+ .02	.....
June 2	E	+ .01	—0.9
89 Mar. 19	B	— .03	—0.1
22	E	— .01	—1.5
23	B	— .05	—1.7
29	E	— .05	0.0
Apr. 5	E	— .02	—1.6
13	B	+ .01	—1.0
15	E	— .01	—1.2
Mean.....		—0.013	—1.04
Corr.			+0.50

Circle East.

1889 May 6	E	+0.01	+0.2
23	B	+ .01	—0.3
25	E	+ .03	.....
27	B	.00	—0.5
June 11	B	— .04	.....
90 Mar. 12	B	— .02	—0.4

450. 17 CANUM VEN.

 $\alpha = 13\ 5\ 0.109.$ $\delta = 39\ 5\ 0.96.$ *Circle West.*

1888 May 15	B	+0.02	—0.6
31	B	+ .06	—0.7
June 2	E	+ .03	—0.9
89 Mar. 29	E	+ .03	—0.7
Apr. 5	E	+ .09	—2.0
13	B	+ .01	—0.6
Mean.....		+0.040	—0.92
Corr.....			+0.24

Circle East.

1889 May 6	E	—0.01	+0.8
23	B	+ .03	+0.3
25	E	— .01	+0.3
90 Mar. 17	B	— .03	+0.6
31	B	+ .02	+0.3
Apr. 4	B	+ .06	+0.9
Mean.....		+0.010	+0.53
Corr.....			—0.90

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
177. 43 COMAE BER.				451. 20 CANUM VEN.			
$\alpha = 13^{\circ} 6' 44.428.$ $\delta = 28^{\circ} 26' 9.16.$				$\alpha = 13^{\circ} 12' 36.592.$ $\delta = 41^{\circ} 9' 6.51.$			
Circle West.				Circle West.			
1888 Apr. 24	E	-0.02	.....	1888 Apr. 24	E	+0.12	+0.8
May 14	B	+ .05	-1.1	May 14	B	+ .06	-1.0
16	E	- .02	-1.1	15	B	- .01	-0.3
19	B	- .02	.....	16	E	- .02	-0.2
21	E	- .04	-1.2	21	E	- .06	-0.1
23	B	- .05	-1.8	23	B	.00	-0.3
25	B	- .02	-1.0	25	B	- .01	0.0
29	B	+ .01	-1.0	29	B	+ .01	-0.6
89 Mar. 19	B	+ .03	-0.6	Mean.....	.....	+0.011	-0.21
21	B	- .02	.....	Corr. ....	.....	.....	+0.27
29	E	- .04	-1.0	Circle East.			
Apr. 5	E	- .02	-1.7	1889 May 6	E	-0.06	-0.2
Mean.....	.....	-0.013	-1.17	23	B	+ .01	+0.1
Corr. ....	.....	.....	+0.32	24	E	.....	-0.6
Circle East.				25	E	- .07	-1.1
1889 Apr. 30	E	-0.04	+0.1	27	B	- .05	-0.5
May 24	E	.....	-0.3	June 12	E	+ .01	+0.2
25	E	.00	-0.4	90 Mar. 28	B	- .02	+1.4
27	B	.00	+0.1	Mean.....	.....	-0.030	-0.10
June 11	B	- .08	.....	Corr. ....	.....	.....	-0.91
90 Mar. 12	B	- .01	-0.2	587. α VIRGINIS.			
17	B	- .02	.....	$\alpha = 13^{\circ} 9' 23.846.$ $\delta = -10^{\circ} 35' 13.34.$			
28	B	- .01	+0.3	Circle East.			
31	B	- .04	.....	1889 May 23	B	+0.08	-0.7
Apr. 4	B	.00	.....	June 5	E	+ .09	-0.4
10	B	- .04	.....	12	E	+ .02	+0.3
16	B	- .01	.....	16	B	+ .08	-0.7
17	B	- .04	-0.2	Mean.....	.....	+0.068	-0.38
Mean.....	.....	-0.024	-0.09	Corr. ....	.....	.....	-0.50
Corr. ....	.....	.....	-0.62				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
178. ζ URSAE MAJORIS <i>pr.</i> $\alpha = 13 \ 19 \ 29.746. \ \delta = 55 \ 29 \ 59.84.$ <i>Circle West.</i>				452. GR. 2001, S. P. <i>Circle West.</i>			
1888 June 15	B	-0.01	.....	1888 Sept. 1	B	-0.12	0.0
Corr.				4	E	- .06	-1.0
<i>Circle East.</i>				5	E	- .04	-0.5
1889 May 24	E	.....	+0.5	6	B	- .15	+0.1
90 Apr. 16	B	-0.02	+0.5	8	E	- .05	-0.3
17	B	- .02	+0.7	11	B	+ .04	-0.3
Mean		-0.020	+0.57	Mean		-0.063	-0.33
Corr.			-0.73	Corr			+0.33
452. GR. 2001. $\alpha = 13 \ 23 \ 19.735. \ \delta = 72 \ 57 \ 46.19.$ <i>Circle West.</i>				<i>Circle East.</i>			
1888 May 14	B	+0.08	+0.1	1888 Dec. 29	B	-0.07	+0.9
15	B	+ .06	-0.3	89 Jan. 2	E	- .05	+0.6
16	E	- .01	+0.2	3	B	.....	+1.3
29	B	- .07	-1.5	Aug. 24	B	+ .03	+2.2
89 Apr. 5	E	+ .12	-0.5	27	B	+ .21	+1.9
13	B	+ .07	-0.3	29	E	- .15	+0.8
Mean.....		+0.042	-0.38	Sept. 27	B	- .08	+2.0
Corr.			+0.10	Mean		-0.018	+1.39
<i>Circle East.</i>				Corr			-1.11
1889 Apr. 30	E	+0.19	+0.6	453. 69 H. URSAE MAJORIS. $\alpha = 13 \ 24 \ 24.894. \ \delta = 60 \ 30 \ 50.09.$ <i>Circle West.</i>			
May 3	B	+ .13	+1.3	1888 May 19	B	-0.05	-0.2
6	E	- .05	+1.0	21	E	+ .01	+0.8
23	B	+ .05	+0.6	23	B	- .06	-0.1
25	E	- .10	-0.1	25	B	- .03	-0.3
27	B	- .07	+0.5	89 Apr. 15	E	- .03	+0.7
Mean.....		+0.025	+0.65	19	B	- .07	+1.2
Corr.....			-1.08	Mean		-0.038	+0.35
				Corr			-0.12

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
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<i>Circle East.</i>				179. ζ VIRGINIS.			
				$\alpha = 13 \ 29 \ 5.254. \quad \delta = -0 \ 1 \ 59.71.$			
				<i>Circle West.</i>			
1889 May 3	B	0.00	+1.4	1888 Apr. 24	E	-0.04	+0.8
25	E	-.14	+0.5	May 16	E	+.08	0.0
27 ¹	B	-.04	[+1.8]	19	B	+.01	-2.0
June 5	E	-.02	+1.7	21	E	+.02	-0.9
11	B	-.09	+1.6	23	B	+.04	-1.7
12	E	-.11	+1.4	29	B	+.02	-1.2
Mean		-0.067	+1.32	June 15	B	-.02	.....
Corr.			-0.90	89 Apr. 25	B	-.01	-1.0
¹ Tel. mic. diminished 0.2 rev.				Mean		+0.012	-0.86
				Corr.			+0.25

453. 69 H. URSÆ MAJORIS, S. P.				454. 17 H. CANUM VEN.			
				$\alpha = 13 \ 29 \ 53.047. \quad \delta = 37 \ 44 \ 45.82.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Sept. 13	E	-0.13	+1.4	1888 May 15	B	+0.11	-0.9
19	B	.00	-0.2	June 2	E	+.12	-0.6
23	E	-.05	-0.9	4	B	+.12	-0.3
Oct. 7	B	-.19	-1.1	89 Apr. 13	B	+.05	-0.9
8	E	-.16	-0.8	19	B	+.09	-0.1
13	B	-.10	+0.2	21	E	-.01	-1.2
Mean		-0.105	-0.23	Mean		+0.080	-0.67
Corr.			-0.25	Corr.			+0.45
<i>Circle East.</i>				<i>Circle East.</i>			
1889 Sept. 20	B	+0.16	-0.5	1889 Apr. 30	E	+0.04	-0.2
Oct. 1 ¹	B	-.02	[+0.1]	May 6	E	+.02	+0.8
4	B	-.08	+0.1	25	E	+.04	-0.2
7	B	-.13	+1.5	27	B	+.07	+0.8
9	B	-.08	+0.9	June 11	B	+.09	+1.0
14	B	+.07	+0.4	16	B	+.01	0.0
Mean		-0.013	+0.48	Mean		+0.045	+0.37
Corr.			-1.02	Corr.			-0.69
¹ Tel. mic. increased 0.1 rev.							

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
455. GR. 2029.				<i>Circle East.</i>			
$\alpha = 13 \ 34 \ 32.482. \ \delta = 71 \ 48 \ 7.77.$							
<i>Circle West.</i>							
1888 May 14	B	+0.14	-0.2	1889 Jan. 3	B	.....	+0.5
16	E	- .04	-0.1	Sept. 20	B	+0.15	+0.6
19	B	+ .02	-0.9	27	B	+ .08	+2.0
25	B	+ .02	-0.5	Oct. 1	B	+ .14	+0.6
89 Apr. 13	B	- .15	-1.0	7	B	- .06	+1.4
21	E	- .18	-0.4	9	B	.00	+1.4
Mean		-0.032	-0.52	13	B	- .23	+1.1
Corr			+0.17	Mean		+0.013	+1.09
<i>Circle East.</i>				Corr			-0.88
1889 Apr. 30	E	-0.07	-0.2	180. τ BOOTIS.			
May 6	E	- .13	+1.0	$\alpha = 13 \ 42 \ 2.104. \ \delta = 18 \ 0 \ 18.74.$			
23	E	- .19	-0.5	<i>Circle West.</i>			
27	B	- .05	+0.4	1888 Apr. 24	E	+0.01	+0.1
June 11	B	+ .05	+1.1	May 16	E	-- .03	-1.4
16	B	+ .06	-0.1	19	B	- .01	-1.8
Mean		-0.055	+0.28	June 2	E	+ .01	-0.7
Corr			-1.14	89 Apr. 13	B	- .04	-2.0
455. GR. 2029, S. P.				15	E	- .03	-1.2
<i>Circle West.</i>				19	B	- .01	-0.8
1888 Sept. 12	B	+0.15	+0.8	Mean		-0.014	-1.11
Oct. 7	B	- .18	-0.9	Corr			+0.81
8	E	- .14	0.0	<i>Circle East.</i>			
9	B	- .15	-0.6	1889 Apr. 30	E	-0.03	-1.1
13	B	- .14	-0.8	May 25	E	- .05	-1.1
15	E	- .01	-0.4	27	B	+ .02	-0.3
Mean		-0.078	-0.32	June 5	E	- .03	-0.4
Corr			+0.22	11	B	.00	+0.6
				12	E	- .02	-0.1
				Mean		-0.018	-0.4
				Corr			-0.38

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
181. η URSAE MAJORIS. $\alpha = 13\ 43\ 12.402.$ $\delta = 49\ 51\ 44.81.$				<i>Circle East.</i>			
<i>Circle West.</i>							
1888 May 14	B	-0.05	-0.2	1889 May 6	E	-0.10	+1.2
15	B	- .11	+0.2	23	B	- .05	+0.9
21	E	+ .03	0.0	25	E	- .10	+0.6
25	B	- .14	-0.5	27	B	- .02	+1.2
29	B	- .08	-1.1	June 5	E	- .04	+1.5
30	E	+ .11	-0.6	11	B	- .03	+1.5
31	B	- .08	-1.0	Mean		-0.057	+1.15
June 15	B	- .11	.....	Corr.			-1.00
Mean		-0.054	-0.46	456. ι DRACONIS, S. P.			
Corr.			+0.03	<i>Circle West.</i>			
<i>Circle East.</i>							
1889 May 23	B	-0.05	+0.7	1888 Sept. 11	B	-0.10	-0.2
25	E	- .11	+0.3	12	B	- .12	+0.3
27	B	- .11	+1.3	13	E	- .20	-0.3
June 5	E	- .14	+1.0	19	B	+ .01	-0.5
11	B	- .09	+1.5	23	E	+ .10	0.0
12	E	- .08	+1.2	Oct. 8	E	- .18	-0.8
Mean		-0.097	+1.00	Mean		-0.082	-0.25
Corr.			-1.15	Corr.			-0.25
456. ι DRACONIS. $\alpha = 13\ 48\ 13.171.$ $\delta = 65\ 16\ 0.27.$				<i>Circle East.</i>			
<i>Circle West.</i>							
1888 May 14	B	+0.01	+0.5	1888 Dec. 29	B	-0.08	-0.1
15	B	+ .04	+0.1	89 Jan. 2	E	- .12	+0.9
16	E	- .08	+0.5	Oct. 7	B	- .13	+1.8
19	B	- .02	-0.5	9	B	- .14	+0.8
89 Apr. 19	B	- .06	+1.1	14	B	+ .04	+0.7
21	E	- .18	+0.7	17	B	- .03	+1.2
Mean		-0.048	+0.40	Mean		-0.077	+0.88
Corr.			-0.10	Corr.			-0.87

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
182. η BOOTIS. $\alpha = 13\ 49\ 26.832.$ $\delta = 18\ 56\ 57.90.$ <i>Circle West.</i>				June 2	E	+ .04	+1.1
1888 Apr. 24	E	-0.05	+0.2	4	B	+ .02	+0.3
May 21	E	- .02	-0.8	15	B	+ .02	.....
25	B	+ .02	-1.5	16	E	+ .05	.....
29	B	- .02	-1.8	89 Apr. 5	E	.00	-0.1
30	E	- .01	-0.6	Mean.....		+0.025	+0.40
31	B	- .02	-2.2	Corr.			+0.19
June 2	E	- .06	-0.7	<i>Circle East.</i>			
4	B	.00	-1.2	1889 May 23	B	0.00	-0.1
8	E	- .03	-1.2	June 12	E	+ .05	+0.2
15	B	- .02	.....	Mean		+0.025	+0.05
16	E	- .01	.....	Corr.			-0.21
89 Apr. 19	B	- .09	-1.0	457. 11 BOOTIS. $\alpha = 13\ 56\ 11.232.$ $\delta = 27\ 55\ 5.35.$ <i>Circle West.</i>			
Mean		-0.026	-1.12	1888 May 16	E	-0.04	-0.5
Corr			+0.61	19	B	- .02	-0.9
<i>Circle East.</i>				21	E	- .02	-0.5
1889 Apr. 30	E	-0.04	-0.8	29	B	- .04	.....
May 3	B	- .07	-0.8	June 8	E	- .04	-1.0
27	B	- .01	-0.3	89 Apr. 19	B	- .04	-0.2
June 11	B	+ .11	+0.5	Mean		-0.033	-0.62
12	E	- .03	+0.3	Corr			+0.32
16	B	- .05	-1.1	<i>Circle East.</i>			
Mean		-0.015	-0.37	1889 Apr. 30	E	-0.06	-0.8
Corr			-0.41	May 3	B	- .06	-0.2
183. τ VIRGINIS. $\alpha = 13\ 56\ 2.867.$ $\delta = 2\ 4\ 36.81.$ <i>Circle West.</i>				25	E	- .01	-0.7
1888 May 14	B	-0.02	+0.5	27	B	- .06	+0.4
30	E	+ .09	+1.2	June 5	E	- .03	0.0
31	B	.00	-0.6	16	B	.00	-0.4
				Mean		-0.037	-0.28
				Corr			-0.57

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
184. α DRACONIS.				<i>Circle East.</i>			
$\alpha = 14 \ 1 \ 24.663. \quad \delta = 64 \ 54 \ 6.30.$				1889 Oct. 14	B	+0.03	+0.6
<i>Circle West.</i>				29	B	+ .06	+1.0
				Mean		+0.045	+0.80
				Corr			-0.88
1888 May 14	B	-0.04	+0.1	458. d BOOTIS.			
15	B	- .01	-0.2	$\alpha = 14 \ 5 \ 22.944. \quad \delta = 25 \ 36 \ 46.42.$			
16	E	- .03	+0.1	<i>Circle West.</i>			
19	B	- .11	-0.8	1888 May 14	B	+0.02	-0.1
21	E	+ .08	+0.1	15	B	.00	+0.1
25	B	- .08	-0.7	16	E	.00	+0.2
29	B	+ .05	-0.5	19	B	+ .01	-0.5
31	B	.00	-1.1	June 2	E	- .03	+0.1
June 4	B	- .04	+0.2	8	E	+ .01	-0.3
89 Apr. 19	B	- .07	+1.3	Mean		+0.002	-0.08
Mean		-0.025	-0.15	Corr			+0.34
Corr			-0.12	<i>Circle East.</i>			
<i>Circle East.</i>				1889 Apr. 30	E	-0.02	-0.4
1889 May 3	B	-0.07	+0.9	May 3	B	+ .01	0.0
6	E	- .09	+1.3	6	E	- .05	+0.3
23	B	- .07	+0.8	23	B	- .05	+0.1
27	B	- .03	+0.9	25	E	+ .01	-0.4
June 5	E	- .02	+0.9	27	B	.00	+0.5
11	B	+ .02	+1.6	Mean		-0.017	+0.02
12		+ .03	+1.4	Corr			-0.44
16	B	- .06	+0.1	185. κ VIRGINIS.			
Mean		-0.036	+0.99	$\alpha = 14 \ 7 \ 1.670. \quad \delta = -9 \ 45 \ 41.22.$			
Corr			-0.99	<i>Circle West.</i>			
184. α DRACONIS, S. P.				1888 May 31	B	+0.01	-1.5
<i>Circle West.</i>				June 4	B	+ .02	-0.7
1888 Sept. 19	B	+0.02	-0.9				
Corr			-0.23				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
June 16	E	— .02	.....	459. 4 URSÆ MINORIS, S. P.			
89 Apr. 5	E	— .01	—0.3	<i>Circle West.</i>			
Mean		0.000	—0.83	1887 Nov. 28	B	[+0.81]	+0.2
Corr			+0.31	88 Sept. 11	B	— .37	+0.5
<i>Circle East.</i>				12	B	— .24	+0.7
1889 May 23	B	0.00	—0.7	13	E	— .24	+0.4
Corr			—0.35	19	B	+ .13	+0.2
459. 4 URSÆ MINORIS.				23	E	+ .03	+1.0
$\alpha = 14 \ 9 \ 17.021.$				Oct. 8	E	— .18	+0.7
$\delta = 78 \ 3 \ 52.05.$				Mean		—0.145	+0.53
<i>Circle West.</i>				Corr			— .06
1888 May 14	B	+0.06	+0.1	<i>Circle East.</i>			
15	B	+ .10	0.0	1888 Dec. 29	B	—0.11	+1.7
19	B	+ .20	—0.8	89 Jan. 3	B	.....	+1.5
21	E	+ .25	—0.8	Oct. 14	B	+ .35	+1.2
25	B	— .19	—0.5	17 ¹	B	+ .07	[—1.4]
29	B	+ .03	—0.8	18	B	+ .29	+2.9
30	E	+ .25	—1.2	20	B	+ .16	+1.6
Mean		+0.100	—0.57	29	B	+ .15	+1.2
Corr			—0.19	Mean		+0.152	+1.68
<i>Circle East.</i>				Corr			—1.11
1889 Apr. 30	E	—0.07	+0.8	¹ Tel. mic. doubtful.			
May 6	E	+ .05	+1.3	186. ι VIRGINIS.			
23	B	+ .01	+1.2	$\alpha = 14 \ 10 \ 14.725.$			
25	E	— .05	+0.1	$\delta = -5 \ 28 \ 31.52.$			
27	B	+ .07	+0.7	<i>Circle West.</i>			
June 11	B	+ .25	+1.8	1889 Apr. 19	B	+0.04	—0.4
Mean		+0.043	+0.98	21	E	.00	—0.7
Corr			—1.21	Mean		+0.020	—0.55
				Corr			+0.16

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				<i>Circle East.</i>			
1889 June 5	E	+0.08	-0.6	1889 May 6	E	+0.01	+0.7
16	B	+ .05	-0.4	25	E	- .05	-0.4
Mean		+0.065	-0.50	27	B	+ .01	+0.7
Corr			-0.23	Mean		-0.010	+0.33
				Corr			-0.72
187. α BOOTIS.				189. ι BOOTIS.			
$\alpha = 14 \ 10 \ 38.629. \ \delta = 19 \ 45 \ 19.46.$				$\alpha = 14 \ 12 \ 16.236. \ \delta = 51 \ 52 \ 29.15.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 May 16	E	-0.08	-1.3	1889 Apr. 19	B	-0.01	+0.6
June 2	E	- .05	-1.2	21	E	- .17	-0.8
8	E	+ .01	-0.6	Mean		-0.090	-0.10
16	E	- .04	.....	Corr			+0.18
89 Apr. 25	B	- .06	-1.0	<i>Circle East.</i>			
Mean		-0.044	-1.02	1889 June 5	E	-0.08	+1.4
Corr			+0.46	11	B	+ .03	+1.8
<i>Circle East.</i>				16	B	- .09	+1.0
1889 May 3	B	0.00	-0.7	Mean		-0.047	+1.40
June 12	E	.00	+0.3	Corr			-0.99
Mean		0.000	-0.20	190. ϑ BOOTIS.			
Corr			-0.46	$\alpha = 14 \ 21 \ 27.116. \ \delta = 52 \ 21 \ 33.79.$			
188. λ BOOTIS.				<i>Circle West.</i>			
$\alpha = 14 \ 12 \ 12.104. \ \delta = 46 \ 35 \ 36.85.$				1888 May 15	B	+0.04	-0.8
<i>Circle West.</i>				16	E	+ .06	0.0
1888 May 19	B	-0.02	-1.0	19	B	+ .05	-1.4
31	B	+ .08	-1.3	21	E	+ .06	-0.1
June 2	E	+ .11	-0.3	June 2	E	+ .01	-0.4
4	B	+ .02	-0.2	8	E	+ .05	-0.5
Mean		+0.048	-0.70	Mean		+0.045	-0.53
Corr			+0.38	Corr			+0.21

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				<i>Circle East.</i>			
1889 May 23	B	+0.04	+0.3	1889 June 12	E	-0.01	+1.4
June 12	E	+ .02	+1.6	16	B	- .03	+0.4
16	B	- .05	+0.5	Mean .....	.....	-0.020	+0.90
Mean .....	.....	+0.003	+0.80	Corr .....	.....	.....	-0.57
Corr .....	.....	.....	-0.94				
191. ϕ VIRGINIS.				193. γ BOOTIS.			
$\alpha = 14 \ 22 \ 32.060. \ \delta = -1 \ 44 \ 4.55.$				$\alpha = 14 \ 27 \ 38.910. \ \delta = 38 \ 47 \ 22.51.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1889 Apr. 21	E	-0.04	-1.5	1889 Apr. 21	E	-0.04	-1.0
25	B	+ .05	-1.1	25	B	- .03	-0.1
Mean .....	.....	+0.005	-1.30	Mean .....	.....	-0.035	-0.55
Corr .....	.....	.....	+0.27	Corr .....	.....	.....	+0.28
<i>Circle East.</i>				<i>Circle East.</i>			
1889 Apr. 30	E	+0.04	-0.1	1889 May 27	B	-0.03	+0.9
May 3	B	+ .01	-1.1	June 5	E	.00	+0.8
6	E	.00	-0.2	Mean .....	.....	-0.015	+0.85
June 5	E	+ .05	+0.1	Corr .....	.....	.....	-0.86
11	B	+ .08	0.0				
Mean .....	.....	+0.036	-0.26	460. GR. 2125.			
Corr .....	.....	.....	-0.29	$\alpha = 14 \ 28 \ 43.604. \ \delta = 60 \ 42 \ 36.84.$			
192. ρ BOOTIS.				<i>Circle West.</i>			
$\alpha = 14 \ 27 \ 5.365. \ \delta = 30 \ 51 \ 16.25.$							
<i>Circle West.</i>							
1888 May 30	E	+0.02	+0.6	1888 May 14	B	+0.12	+0.7
June 2	E	- .02	-1.2	15	B	+ .06	+0.9
8	E	.00	-1.4	16	E	+ .11	+0.7
16	E	.....	-0.6	19	B	+ .07	0.0
Mean .....	.....	0.000	-0.65	21	E	+ .06	+0.6
Corr .....	.....	.....	+0.18	25	B	+ .11	+1.2
				Mean .....	.....	+0.088	+0.68
				Corr .....	.....	.....	-0.11

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
<i>Circle East.</i>				461. 33 Bootis.			
1889 Apr. 30	E	-0.08	+1.3	$\alpha = 14 \ 34 \ 44.601. \ \delta = 44 \ 52 \ 45.42.$			
May 3	B	+ .02	+1.6	<i>Circle West.</i>			
6	E	- .01	+1.8	1888 May 14	B	+0.10	+0.4
23	B	+ .08	+1.7	15	B	.00	+0.8
25	E	- .07	+1.1	16	E	+ .03	+0.8
June 11	B	+ .10	+2.2	19	B	- .01	-0.2
Mean.....		+0.007	+1.62	21	E	+ .05	+0.3
Corr.....			-0.88	89 Apr. 21	E	- .08	+0.3
460. GR. 2125, S. P.				Mean.....		+0.015	+0.40
<i>Circle West.</i>				Corr.....			+0.33
1887 Dec. 29	B	[+0.27]	-1.3	<i>Circle East.</i>			
88 Sept. 11	B	- .06	-1.5	1889 Apr. 30	E	-0.07	+0.8
19	B	+ .07	+0.6	May 3	B	- .02	+1.9
23	E	+ .03	+0.1	6	E	- .05	+1.9
Oct. 8	E	- .09	-0.9	23	B	+ .05	+1.9
15	E	+ .01	-1.4	25	E	- .05	+1.4
16	B	- .02	-0.3	27	B	+ .02	+2.2
Mean.....		-0.010	-0.67	Mean.....		-0.020	+1.68
Corr.....			-0.23	Corr.....			-0.80
<i>Circle East.</i>				196. μ VIRGINIS.			
1889 Jan. 3	B	.....	0.0	$\alpha = 14 \ 37 \ 15.761. \ \delta = -5 \ 10 \ 46.72.$			
Oct. 1	B	- .02	-0.6	<i>Circle West.</i>			
7	B	- .03	0.0	1888 May 15	B	+0.01	-0.4
9	B	.00	+0.3	25	B	- .04	-0.5
14	B	+ .10	+0.3	89 Apr. 21	E	- .03	-0.9
20	B	+ .13	-0.1	Mean.....		-0.020	-0.60
29	B	- .02	+1.3	Corr.....			+0.17
Mean.....		+0.027	+0.17				
Corr.....			-1.04				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				590. α LIBRAE.			
1889 Apr. 30	E	+0.02	-0.7	$\alpha = 14 \ 44 \ 47.562. \ \delta = -15 \ 35 \ 4.05.$			
May 3	B	- .01	-0.5	<i>Circle West.</i>			
6	E	+ .02	-0.6	1888 May 14	B	-0.02	-1 2
June 5	E	+ .11	-0.5	16	E	- .03	+0.1
11	B	+ .04	+0.1	21	E	+ .01	-0.2
16	B	+ .03	-0.2	29	B	- .07	-0.3
Mean.....		+0.035	-0.40	June 4	B	.....	-1.6
Corr.....			-0.25	Mean.....		-0.028	-0.64
197. 109 VIRGINIS.				Corr.....			+0.55
$\alpha = 14 \ 40 \ 41.223. \ \delta = 2 \ 21 \ 24.23.$				<i>Circle East.</i>			
<i>Circle West.</i>				1889 May 25	E	+0.03	-0.1
1888 May 14	B	+0.03	-1.1	June 16	B	+ .06	+1.0
15	B	+ .01	-0.1	Mean.....		+0.045	+0.45
16	E	- .01	-0.1	Corr.....			-0.51
19	B	- .03	-0.8	462. GR. 2164.			
25	E	+ .06	.....	$\alpha = 14 \ 48 \ 38.864. \ \delta = 59 \ 44 \ 28.81.$			
29	B	+ .01	-0.2	<i>Circle West.</i>			
30	E	- .09	+0.5	1888 May 16	E	0.00	-0.4
June 4	B	+ .06	-0.4	19	B	+ .03	-1.5
8	E	+ .04	+0.1	21	E	+ .03	-0.5
Mean.....		+0.009	-0.26	29	B	+ .07	-1.1
Corr.....			+0.17	June 8	E	.00	-0.9
<i>Circle East.</i>				89 Apr. 21	E	- .05	-1.5
1889 Apr. 30	E	+0.01	-1.4	Mean.....		+0.013	-0.98
May 6	E	+ .05	-0.7	Corr.....			-0.13
25	E	+ .04	-1.8				
27	B	+ .05	-0.4				
June 11	B	+ .06	+0.2				
16	B	+ .09	-0.6				
Mean.....		+0.050	-0.78				
Corr.....			-0.21				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				463. P. XIV., 221.			
1889 Apr. 30	E	-0.08	-0.2	$\alpha = 14 \ 51 \ 1.737. \ \delta = 14 \ 53 \ 28.68$			
May 3	B	.00	0.0	<i>Circle West.</i>			
6	E	-.02	+0.2	1888 May 19	B	-0.08	-1.5
23	B	+.01	+0.2	30	E	-.10	0.0
25	E	-.06	-0.1	31	B	-.04	-1.5
27	B	-.02	+0.7	June 4	B	-.01	.....
Mean		-0.028	+0.13	16	E	-.02	-1.0
Corr			-0.91	89 Apr. 21	E	-.10	-3.2
462. GR. 2164, S. P.				Mean		-0.058	-1.44
<i>Circle West.</i>				Corr			+0.63
1888 Sept. 11	B	0.00	+0.8	<i>Circle East.</i>			
13	E	-.19	+1.8	1889 Apr. 30	E	-0.06	0.0
19	B	.00	+0.6	May 6	E	-.06	-0.1
23	E	+.14	+0.2	23	B	-.01	-0.7
Oct. 8	E	-.07	+0.4	25	E	-.03	-0.8
15	E	-.03	+0.4	27	B	+.01	-0.1
Mean		-0.025	+0.70	June 11	B	-.02	+0.2
Corr			-0.32	Mean		-0.028	-0.25
<i>Circle East.</i>				Corr			-0.78
1889 Jan. 3	B	.....	+1.1	198. β URSAE MINORIS.			
10	B	-0.14	+0.2	$\alpha = 14 \ 51 \ 1.837. \ \delta = 74 \ 36 \ 17.99.$			
Oct. 1	B	-.02	+1.9	<i>Circle West.</i>			
7 ¹	B	[-.24]	[+3.1]	1888 May 14	B	+0.06	+0.1
9	B	+.09	+1.7	15	B	+.01	-0.1
14	B	+.03	+2.0	25	B	-.07	-0.3
20	B	+.16	+0.7	Mean		0.000	-0.10
29	B	-.02	+2.0	Corr			+0.06
Mean		+0.017	+1.37				
Corr			-0.98				
¹ Nadirs doubtful.							

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				464. 2 H. URSÆ MINORIS, S. P.			
1889 June 16	B	-0.08	+1.3	<i>Circle West.</i>			
19	E	-.03	+1.3	1888 Sept. 11	B	-0.25	+0.7
Mean		-0.055	+1.30	13	E	-.09	+1.3
Corr			-1.07	19	B	-.16	+0.9
β URSÆ MINORIS, S. P.				23	E	-.10	+1.6
<i>Circle East.</i>				Oct. 8	E	-.27	+0.4
1889 Oct. 18	B	+0.21	+2.2	13	B	-.22	+1.2
Corr			-1.31	Mean		-0.182	+1.02
464. 2 H. URSÆ MINORIS.				Corr			-0.26
$\alpha = 14 \ 55 \ 50.254. \ \delta = 66 \ 22 \ 15.21.$				<i>Circle East.</i>			
<i>Circle West.</i>				1888 Dec. 29	B	-0.33	+1.0
1888 May 16	E	-0.17	-0.8	89 Jan. 3	B	.....	+1.6
19	B	-.13	-1.4	10	B	-.13	+2.6
21	E	-.13	-1.5	Oct. 7	B	-.36	+3.1
29	B	-.16	-0.4	9	B	-.12	+1.4
June 8	E	-.14	-0.8	13	B	-.15	+1.0
Mean		-0.146	-0.98	14	B	-.01	+1.4
Corr			-0.08	17	B	-.06	+1.5
<i>Circle East.</i>				Mean		-0.166	+1.70
1889 Apr. 30	E	-0.22	-0.5	Corr			-0.84
May 3	B	-.18	+0.5	199. β BOOTIS.			
6	E	-.26	+0.1	$\alpha = 14 \ 57 \ 48.154. \ \delta = 40 \ 49 \ 28.88.$			
23	B	-.22	+0.1	<i>Circle West.</i>			
25	E	-.19	-0.7	1888 May 14	B	-0.03	-0.8
27	B	-.16	+0.2	15	B	+.01	.....
June 11	B	-.09	+1.0	31	B	.00	-0.3
Mean		-0.189	+0.10	June 15	B	-.04	-0.5
Corr			-1.04	Mean		-0.015	-0.53
				Corr			+0.26

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				466. 3 SERPENTIS.			
1889 May 6 E -0.02 +0.4				$\alpha = 15 \ 9 \ 43.302. \ \delta = 5 \ 20 \ 52.94.$			
25 E - .02 -0.2				<i>Circle West.</i>			
June 5 E - .03 +0.5				1888 May 21 E -0.03 -0.5			
11 B - .02 +0.4				25 B .00 -0.7			
16 B - .04 +0.4				29 B - .07 -0.3			
19 E + .01 +0.6				30 E - .12 -0.3			
Mean -0.020 +0.35				31 B - .05 -0.3			
Corr -0.94				June 8 E - .04 -0.2			
465. ψ BOOTIS.				Mean..... -0.052 -0.38			
$\alpha = 14 \ 59 \ 43.919. \ \delta = 27 \ 22 \ 36.47.$				Corr +0.24			
<i>Circle West.</i>				<i>Circle East.</i>			
1888 May 16 E -0.05 -0.9				1889 May 3 B -0.02 -0.1			
19 B .00 -1.3				6 E - .01 -0.3			
21 E - .03 -0.9				23 B + .01 -0.4			
25 B + .02 -1.4				25 E - .05 -0.7			
29 B + .01 -1.0				27 B .00 +0.1			
June 8 E - .01 -0.4				June 5 E + .02 -0.3			
Mean -0.010 -0.98				Mean..... -0.008 -0.28			
Corr +0.31				Corr -0.34			
<i>Circle East.</i>				201. δ BOOTIS.			
1889 Apr. 30 E 0.00 -0.8				$\alpha = 15 \ 11 \ 4.102. \ \delta = 33 \ 43 \ 31.98.$			
May 3 B - .03 -0.2				<i>Circle West.</i>			
6 E + .02 0.0				1888 May 16 E -0.06 -1.6			
23 B + .02 -0.5				19 B - .03 -1.6			
27 B + .03 +0.4				June 4 B - .08 -1.7			
June 5 E - .05 -0.1				16 E - .06 -1.9			
Mean..... -0.002 -0.20				Mean -0.058 -1.70			
Corr..... -0.49				Corr +0.37			

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
Circle East.				June 8 E + .02 -0.4			
1889 June 12	E	-0.05	-0.2	Mean.....		+0.098	-0.15
16	B	- .03	-0.5	Corr.			-0.16
19	E	- .04	-0.1	Circle East.			
Mean		-0.040	-0.27	1889 May 3	B	+0.04	+0.9
Corr.			-0.79	6	E	- .05	+1.3
				23	B	+ .12	+1.4
				25	E	- .02	+0.9
				27	B	+ .07	+1.5
				June 5	E	+ .11	+1.2
				Mean		+0.045	+1.20
				Corr.			-1.26
200. β LIBRAE.				467. 1 H. URSÆ MINORIS, S. P.			
$\alpha=15$ 11 5.242. $\delta=-8$ 58 35.98.				Circle West.			
Circle West.				1888 Sept. 11 B +0.03 -1.1			
1888 May 14	B	-0.09	-0.7	13	E	- .04	-0.2
June 7	B	+ .02	+0.2	19	B	+ .08	+0.5
15	B	+ .01	0.0	23	E	+ .16	+0.9
89 Apr. 21	E	+ .01	-1.3	Oct. 8	E	+ .02	-1.2
25	B	- .07	-0.1	13	B	- .01	+1.0
Mean		-0.024	-0.38	Mean		+0.040	-0.02
Corr.			+0.31	Corr.			-0.16
Circle East.				Circle East.			
1889 Apr. 30	E	+0.02	-1.0	1889 Jan. 10	B	-0.01	+0.5
May 25	E	+ .06	-0.7	Oct. 1	B	+ .20	+0.4
June 11	B	+ .09	-0.3	7	B	- .04	+1.9
Mean		+0.057	-0.67	9	B	+ .05	+0.1
Corr.			-0.24	13	B	- .03	+0.2
467. 1 H. URSÆ MINORIS.				14	B	+ .21	+1.0
$\alpha=15$ 13 22.557. $\delta=67$ 45 52.23.				Mean		+0.063	+0.68
Circle West.				Corr.			-0.81
1888 May 21	E	+0.16	0.0				
25	B	+ .16	0.0				
29	B	+ .10	-0.2				
30	E	+ .05	-0.5				
31	B	+ .10	+0.2				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
202. μ BOOTIS.				203. γ URSAE MINORIS.			
$\alpha = 15 \ 20 \ 20.045. \ \delta = 37 \ 45 \ 47.24.$				$\alpha = 15 \ 20 \ 54.547. \ \delta = 72 \ 13 \ 31.64.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 May 14	B	+0.06	-0.6	1888 May 16	E	-0.44	-0.7
31	B	+ .05	-0.4	19	B	- .25	-1.2
June 6	E	+ .13	-0.5	29	B	- .34	-0.9
Mean		+0.080	-0.50	89 Apr. 25	B	- .21	+0.6
Corr			+0.44	Mean		-0.310	-0.55
				Corr			+0.14
468. τ^1 SERPENTIS.				<i>Circle East.</i>			
$\alpha = 15 \ 20 \ 41.241. \ \delta = 15 \ 48 \ 55.29.$				1889 May 27	B	-0.09	+0.5
<i>Circle West.</i>				June 16	B	- .16	-0.1
1888 May 21	E	+0.01	-2.2	19	E	- .19	+0.4
25	B	+ .08	-2.7	Mean.....		-0.147	+0.27
30	E	- .03	-2.5	Corr.....			-1.11
June 4	B	+ .09	-2.1				
22	E	- .01	-0.5				
89 Apr. 21	E	- .01	-3.8				
Mean.....		+0.022	-2.30				
Corr.....			+0.79				
<i>Circle East.</i>				203. γ URSAE MINORIS, S. P.			
1889 Apr. 30	E	+0.06	-1.5	<i>Circle West.</i>			
May 3	B	+ .07	-1.2	1888 Oct. 15	E	-0.06	-0.4
6	E	+ .03	-0.2	92 Jan. 6 ¹	F	- .18	.....
23	B	+ .04	-0.7	14	F	- .19	.....
25	E	+ .06	-0.5	Mean		-0.143	-0.40
June 11	B	+ .07	-0.2	Corr			+0.27
Mean.....		+0.055	-0.72	¹ The star was not used by F. on any date for determining the constant n .			
Corr			-0.87	<i>Circle East.</i>			
				1889 Oct. 13	B	-0.05	+0.3
				14	B	- .06	+1.5
				17	B	- .20	.....
				18	B	- .05	.....
				29	B	- .20	+1.3
				91 Dec. 10	F	- .09	+1.0
				11	F	- .17	.....

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
Dec. 16	F	— .28	.....	June 11	B	— .03	+0.1
17	F	— .26	.....	16	B	— .02	+0.8
18	F	— .05	.....	Mean .....	.....	—0.030	+0.47
23	F	— .08	.....	Corr .....	.....	.....	—0.63
Mean .....	.....	—0.135	+1.02				
Corr. ....	.....	.....	—0.91				

204. ι DRACONIS. $\alpha = 15 \ 22 \ 28.931. \ \delta = 59 \ 21 \ 5.91.$ *Circle West.*

1888 June 4	B	0.00	—1.0
Corr. ....	.....	.....	—0.11
<i>Circle East.</i>			
1889 May 23	B	+0.04	+0.6
Corr .....	.....	.....	—0.88

205. β CORONAE BOR. $\alpha = 15 \ 23 \ 17.651. \ \delta = 29 \ 29 \ 6.24.$ *Circle West.*

1888 May 14	B	+0.01	—0.9
25	B	— .01	—0.5
31	B	— .03	—1.5
June 6	E	— .02	—0.2
16	E	— .03	—0.3
Mean .....	.....	—0.016	—0.68
Corr .....	.....	.....	+0.27

Circle East.

1889 Apr. 30	E	—0.04	—0.1
May 3	B	— .08	+0.9
6	E	— .02	+0.3
25	E	+ .01	+0.5
June 5	E	— .03	+0.8

206. ν^1 BOOTIS. $\alpha = 15 \ 26 \ 58.710. \ \delta = 41 \ 12 \ 29.62.$ *Circle West.*

1888 May 29	B	+0.02	—1.2
June 2	E	— .08	—1.6
7	B	— .01	—0.1
22	E	.....	+0.6
Mean .....	.....	—0.023	—0.58
Corr .....	.....	.....	+0.25

Circle East.

1889 Apr. 30	E	—0.11	+0.3
May 23	B	— .04	+1.2
25	E	— .03	+0.8
27	B	— .05	+1.1
June 12	E	— .03	+0.8
Mean .....	.....	—0.052	+0.84
Corr .....	.....	.....	—0.90

208. γ CORONAE BOR. $\alpha = 15 \ 28 \ 29.552. \ \delta = 31 \ 43 \ 50.34.$ *Circle West.*

1889 Apr. 25	B	+0.05	+0.5
Corr .....	.....	.....	+0.18

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				469. φ BOOTIS.			
1889 May 3	B	+0.02	-0.1	$\alpha = 15 \ 33 \ 52.619. \ \delta = 40 \ 42 \ 42.16.$			
June 5	E	+ .05	+0.4	<i>Circle West.</i>			
16	B	+ .08	-0.2	1888 May 21	E	-0.08	0.0
19	E	+ .15	+0.8	29	B	- .01	-0.6
Mean		+0.075	+0.22	June 6	E	- .01	+0.7
Corr			-0.69	7	B	.00	0.0
209. α CORONAE BOR.				89 Apr. 21	E	- .03	-0.5
$\alpha = 15 \ 30 \ 1.835. \ \delta = 27 \ 5 \ 6.70.$				25	B	- .06	+0.7
<i>Circle West.</i>				Mean		-0.032	+0.05
1888 May 21	E	-0.06	-0.6	Corr			+0.24
25	B	+ .04	-1.2	<i>Circle East.</i>			
30	E	- .03	-1.8	1889 Apr. 30	E	-0.11	+0.2
June 4	B	- .01	-1.3	May 3	B	- .07	+0.3
6	E	.00	+0.1	6	E	- .07	+0.4
7	B	+ .01	-0.3	23	B	- .06	+1.1
8	E	+ .05	-0.7	25	E	- .01	+0.7
15	B	- .03	-0.6	27	B	- .02	+0.2
89 Apr. 21	E	+ .01	-1.0	Mean		-0.057	+0.48
Mean		-0.002	-0.82	Corr			-0.94
Corr			+0.30	210. ζ CORONAE BOR. <i>seq.</i>			
<i>Circle East.</i>				$\alpha = 15 \ 35 \ 14.090. \ \delta = 36 \ 59 \ 35.52.$			
1889 Apr. 30	E	-0.02	-1.1	<i>Circle West.</i>			
May 6	E	- .01	+0.1	1888 May 25	B	+0.08	-1.6
23	B	- .04	+0.4	28	E	- .04	+0.5
25	E	+ .07	-0.4	June 21	B	+ .06	-1.0
27	B	- .04	+0.2	Mean		+0.033	-0.70
June 5	B	- .03	-0.2	Corr			+0.58
12	E	+ .03	+0.7				
Mean		-0.006	-0.04				
Corr			-0.45				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				213. β SERPENTIS.			
1889 June 16	B	+0.01	-0.4	$\alpha = 15 \ 41 \ 6.609. \ \delta = 15 \ 45 \ 59.44.$			
19	E	.00	+0.5	<i>Circle West.</i>			
Mean		+0.005	+0.05	1888 June 8	E	+0.01	-1.2
Corr.....			-0.58	Corr			+0.78
211. γ CORONAE BOR.				<i>Circle East.</i>			
$\alpha = 15 \ 38 \ 7.408. \ \delta = 26 \ 38 \ 39.56.$				1889 May 3	B	+0.03	-0.7
<i>Circle East.</i>				6	E	+ .07	-0.2
1889 June 11	B	-0.03	+0.1	23	B	+ .05	-0.3
16	B	- .02	+0.2	25	E	+ .01	-0.4
Mean		-0.025	+0.15	27	B	+ .11	+0.1
Corr			-0.43	June 11	B	+ .07	-0.4
212. α SERPENTIS.				Mean.....		+0.057	-0.32
$\alpha = 15 \ 33 \ 50.966. \ \delta = 6 \ 46 \ 19.40.$				Corr			-0.87
<i>Circle West.</i>				215. κ SERPENTIS.			
1888 May 28	E	+0.01	+0.1	$\alpha = 15 \ 43 \ 47.308. \ \delta = 18 \ 28 \ 54.06.$			
June 6	E	+ .06	+0.1	<i>Circle West.</i>			
7	B	+ .05	-0.7	1888 May 30	E	-0.06	-2.8
21	B	+ .05	-1.0	June 7	B	- .05	-1.2
22	E	.00	+0.8	22	E	- .02	-0.1
89 Apr. 21	E	- .07	-0.6	Mean		-0.043	-1.37
Mean		+0.017	-0.22	Corr			+0.70
Corr			+0.49	<i>Circle East.</i>			
<i>Circle East.</i>				1889 June 5	E	-0.06	-0.6
1889 Apr. 30	E	+0.02	-0.4	12	E	+ .01	-0.6
May 6	E	+ .05	-0.6	25	B	- .04	-0.8
June 25	B	+ .01	+0.2	Mean		-0.030	-0.67
Mean		+0.027	-0.27	Corr			-0.39
Corr			-0.36				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
214. μ SERPENTIS.				470. 12 H. DRACONIS, S. P.			
$\alpha = 15 \ 43 \ 52.733. \ \delta = -3 \ 5 \ 35.03.$				<i>Circle West.</i>			
<i>Circle West.</i>							
1888 June 4	B	+0.03	-2.0	1887 Dec. 13	B	.....	+0.2
15	B	-.03	-1.3	88 Sept. 13	E	-0.29	+0.4
89 Apr. 21	E	+.04	-0.2	19	B	-.08	+1.1
Mean		+0.013	-1.17	23	E	-.07	-0.6
Corr.			+0.20	Oct. 8	E	-.21	-0.8
<i>Circle East.</i>				13	B	-.13	+0.8
1889 June 16	B	+0.09	-0.7	16	B	-.08	+2.3
19	E	+.08	+0.7	Mean		-0.143	+0.49
Mean		+0.085	0.00	Corr.			-0.23
Corr.			-0.28	<i>Circle East.</i>			
470. 12 H. DRACONIS.							
$\alpha = 15 \ 44 \ 59.478. \ \delta = 62 \ 56 \ 22.55.$							
<i>Circle West.</i>							
1888 May 21	E	-0.07	-0.9	1889 Jan. 10	B	-0.13	+0.9
25	B	-.01	-0.4	Oct. 1	B	-.05	+1.5
28	E	-.20	+0.7	7	B	-.14	+0.9
29	B	-.06	-0.8	9	B	.00	+0.4
June 2	E	-.10	-0.3	13	B	.00	+2.3
6	E	-.06	+0.3	Mean		-0.064	+1.20
Mean		-0.083	-0.23	Corr.			-0.85
Corr.			-0.19	216. ϵ SERPENTIS.			
<i>Circle East.</i>				$\alpha = 15 \ 45 \ 19.921. \ \delta = 4 \ 48 \ 33.04.$			
1889 Apr. 30	E	-0.27	-0.1	<i>Circle West.</i>			
May 3	B	-.10	+0.6				
6	E	-.16	+0.5	1889 Apr. 25	B	-0.01	-0.1
23	B	-.06	+0.9	Corr.			+0.19
25	E	-.15	+0.6	<i>Circle East.</i>			
June 11	B	+.01	+1.0				
Mean		-0.122	+0.58	1889 May 27	B	+0.07	+0.8
Corr.			-0.83	June 5	E	+.04	-0.1
				25	B	.00	0.0
				Mean		+0.037	+0.23
				Corr.			-0.33

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
217. ζ URSAE MINORIS.				Oct. 13			
$\alpha = 15\ 47\ 59.661.$ $\delta = 78\ 7\ 57.32.$				18			
Circle West.				Mean			
1888 May 21	E	-0.03	-0.3	Corr.			
25	B	-.04	-0.2				
28	E	-.01	+0.5				
29	B	-.05	-0.1				
June 4	B	+.04	-0.2				
21	B	-.08	+0.3				
89 Apr. 25	B	+.03	+1.3				
Mean		-0.020	+0.19				
Corr			-0.19				
Circle East.							
1889 Apr. 30	E	-0.13	+0.4				
May 25	E	+.10	.....				
June 16	B	+.07	+1.3				
19	E	+.04	+1.0				
25	B	-.06	+1.1				
July 5	E	-.17	+1.1				
Mean		-0.025	+0.98				
Corr			-1.21				
217. ζ URSAE MINORIS, S. P.							
Circle West.							
1888 Oct. 15	E	+0.15	.....				
Nov. 10	B	-.20	-0.1				
Mean		-0.025	-0.1				
Corr			-0.06				
Circle East.							
1889 Oct. 1	B	+0.27	.....				
7	B	-.15	+2.2				
9 ¹	B	+.11	[+0.9]				
¹ Tel. mic. changed 0.1 rev.							
				218. γ SERPENTIS.			
				$\alpha = 15\ 51\ 22.303.$ $\delta = 16\ 1\ 15.64.$			
				Circle West.			
				1888 May 21	E	+0.03	-2.2
				June 15	B	+.06	[+2.2]
				Mean		+0.045	-2.20
				Corr			+0.82
				Circle East.			
				1889 Apr. 30	E	+0.03	-0.8
				May 3	B	-.01	-1.3
				6	E	.00	0.0
				June 12	E	+.04	+0.2
				Mean		+0.015	-0.48
				Corr			-0.89
				219. ε CORONAE BOR.			
				$\alpha = 15\ 53\ 1.991.$ $\delta = 27\ 11\ 48.15.$			
				Circle West.			
				1888 May 29	B	+0.03	-1.6
				June 4	B	-.03	-0.5
				8	E	-.06	-0.9
				22	E	+.01	+0.3
				89 Apr. 21	E	+.07	+0.5
				Mean		+0.004	-0.44
				Corr			+0.30

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				220. γ DRACONIS. $\alpha = 15\ 59\ 49.809.$ $\delta = 58\ 51\ 33.11.$			
1889 May 23	B	-0.03	-0.1	<i>Circle West.</i>			
25	E	- .01	-0.3	1888 June 21	B	-0.14	+0.1
27	B	+ .01	+0.6	Mean .....	.....	-0.140	+0.10
June 5	E	- .08	-0.3	Corr. ....	.....	.....	-0.08
25	B	- .02	-0.6	<i>Circle East.</i>			
29	E	.00	+0.6	1889 June 16	B	-0.13	-0.1
July 1	B	.00	+0.1	19	E	- .15	+0.7
5	E	- .03	+0.2	July 1	B	- .08	+0.3
10	E	- .02	-0.5	5	E	- .23	+0.5
Mean .....	.....	-0.020	-0.03	7	B	- .22	+0.7
Corr. ....	.....	.....	-0.42	10	E	- .16	+1.0
471. GR. 2296. $\alpha = 15\ 55\ 10.711.$ $\delta = 55\ 3\ 38.40.$				Mean .....	.....	-0.162	+0.52
<i>Circle West.</i>				Corr. ....	.....	.....	-0.86
1888 May 21	E	+0.04	-0.1	221. ϕ HERCULIS. $\alpha = 16\ 5\ 18.030.$ $\delta = 45\ 13\ 24.78.$			
25	B	+ .11	-0.3	<i>Circle West.</i>			
28	E	+ .13	+0.4	1888 June 30	E	+0.25	-0.8
30	E	+ .10	-1.7	89 Apr. 21	E	+ .23	0.0
June 2	E	+ .11	-0.3	25	B	+ .20	+0.1
4	B	+ .08	-0.3	Mean .....	.....	+0.227	-0.23
6	E	+ .10	+1.5	Corr. ....	.....	.....	+0.36
Mean .....	.....	+0.096	-0.11	<i>Circle East.</i>			
Corr. ....	.....	.....	+0.06	1889 May 23	B	+0.21	+0.4
<i>Circle East.</i>				June 11	B	+ .24	+0.9
1889 Apr. 30	E	+0.06	-0.5	19	E	+ .23	+1.1
May 3	B	+ .11	+0.2	25	B	+ .18	+0.8
6	E	+ .12	+0.4	29	E	+ .13	-0.2
23	B	+ .15	+0.3	July 5	E	+ .13	+1.1
27	B	+ .05	+1.2	Mean .....	.....	+0.187	+0.68
June 5	E	+ .06	+1.1	Corr. ....	.....	.....	-0.80
Mean .....	.....	+0.092	+0.45				
Corr. ....	.....	.....	-0.72				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
222. δ OPHIUCHI. $\alpha = 16\ 8\ 34.831.$ $\delta = -3\ 24\ 38.21.$ <i>Circle West.</i>				June 30 E — .04 +0.4 89 Apr. 25 B + .02 +0.4 Mean..... +0.006 +0.07 Corr..... +0.16 <i>Circle East.</i>			
1888 May 25	B	—0.03	+0.8	1889 June 16	B	—0.01	—0.2
28	E	+ .02	0.0	July 1	B	+ .08	+0.6
29	B	— .01	—1.4	5	E	+ .07	+1.4
30	E	— .02	—2.4	7	B	+ .01	+1.4
June 2	E	+ .07	—0.5	10	E	+ .08	+0.4
4	B	+ .01	—1.2	23	E	+ .07	+0.5
6	E	— .03	+0.6	Mean.....		+0.050	+0.68
Mean.....		+0.001	—0.59	Corr.....			—0.28
Corr.....			+0.19	472. 19 URSÆ MINORIS. $\alpha = 16\ 13\ 57.834.$ $\delta = 76\ 9\ 15.06.$ <i>Circle West.</i>			
<i>Circle East.</i>				1888 May 25	B	—0.04	0.0
1889 May 23	B	0.00	—1.4	28	E	+ .01	0.0
June 5	E	+ .04	—1.4	30	E	— .06	—2.3
11	B	+ .03	—0.8	June 2	E	— .05	—0.6
19	E	+ .01	—0.1	4	B	+ .04	—0.4
25	B	+ .03	—0.8	6	E	+ .16	+0.6
29	E	+ .03	—0.4	Mean.....		+0.010	—0.45
July 5	E	+ .07	+0.2	Corr.....			—0.01
10	E	+ .06	—1.4	<i>Circle East.</i>			
Mean.....		+0.034	—0.76	1889 May 23	B	+0.19	+1.2
Corr.....			—0.28	June 5	E	— .04	+1.4
223. ε OPHIUCHI. $\alpha = 16\ 12\ 30.035.$ $\delta = -4\ 25\ 26.48.$ <i>Circle West.</i>				11	B	+ .21	+2.0
1888 May 21	E	+0.03	—0.4	16	B	+ .29	+1.2
29	B	+ .01	—1.0	19	E	— .02	+1.6
June 15	B	.00	0.0	29	E	+ .12	+1.4
16	E	+ .02	—0.3	Mean.....		+0.125	+1.47
22	E	— .03	+1.4	Corr.....			—1.08
23	B	+ .04	.....				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
472. 19 URSAE MINORIS, S. P.				<i>Circle East.</i>			
<i>Circle West.</i>							
1888 Sept. 23	E	+0.16	+0.2	1889 June 5	E	+0.05	+0.6
Oct. 8	E	— .04	—0.8	11	B	+ .16	+0.9
16	B	+ .01	+0.5	19	E	+ .10	+1.0
30	B	+ .23	+0.8	25	B	+ .08	+0.5
Nov. 2	E	— .09	+0.4	29	E	.....	—0.6
10	B	— .07	—0.2	July 10	E	+ .06	+0.6
Mean.....		+0.033	+0.15	23	E	+ .07	.....
Corr.....			—0.02	Mean.....		+0.087	+0.50
<i>Circle East.</i>				Corr.....			—0.72
				225. γ HERCULIS.			
1889 Jan. 22	B	—0.03	+0.4	$\alpha = 16 \ 17 \ 4.022. \ \delta = 19 \ 24 \ 42.56.$			
Oct. 1	B	+ .17	+1.4	<i>Circle West.</i>			
20	B	+ .36	+0.8				
29	B	+ .28	+1.0	1888 May 21	E	—0.02	—1.8
Nov. 9	B	+ .21	+2.1	30	E	+ .05	—2.7
16	B	+ .11	—0.4	June 30	E	+ .03	—0.5
Mean.....		+0.183	+0.88	Mean.....		+0.020	—1.67
Corr.....			—1.17	Corr.....			+0.52
				<i>Circle East.</i>			
224. τ HERCULIS.							
$\alpha = 16 \ 16 \ 25.973. \ \delta = 46 \ 34 \ 31.93.$				1889 May 23	B	+0.07	—1.1
<i>Circle West.</i>				June 29	E	+ .16	.....
				July 1	B	+ .04	+0.2
1888 May 29	B	+0.11	—1.4	5	E	+ .04	+0.2
June 4	B	+ .08	—1.0	7	B	— .01	+0.6
15	B	+ .10	—0.1	Mean.....		+0.060	—0.02
16	B	+ .13	—0.3	Corr.....			—0.44
22	E	+ .09	+0.5	473. ω HERCULIS.			
23	B	+ .10	.....	$\alpha = 16 \ 20 \ 20.269. \ \delta = 14 \ 17 \ 13.19.$			
Mean.....		+0.102	—0.46	<i>Circle West.</i>			
Corr.....			+0.38				
				1888 May 25	B	+0.14	—1.9
				28	E	+ .08	—0.8

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
May 30	E	.00	-3.3	Circle East.			
June 16	E	+ .03	-1.7				
22	E	+ .02	0.0	1889 June 5	E	-0.33	+1.2
23	B	+ .10	[+1.4]	11	B	+ .08	+0.5
Mean		+0.062	-1.54	16	B	- .15	+0.6
Corr			+0.57	19	E	- .21	+1.2
Circle East.				25	B	- .07	+0.4
				29	E	- .25	+0.7
				July 10	E	+ .07	+0.7
				Mean		-0.123	+0.76
				Corr			-1.07
1889 May 23	B	+0.08	-1.1	474. η URSAE MINORIS, S. P.			
June 5	E	+ .06	-0.2	Circle West.			
11	B	+ .12	-0.4				
16	B	+ .08	-0.7				
19	E	+ .08	+0.2				
29	E	+ .04	-0.3				
Mean		+0.077	-0.42				
Corr			-0.73				
474. η URSAE MINORIS.							
$\alpha = 16 \ 20 \ 43.474. \quad \delta = 76 \ 0 \ 30.96.$							
Circle West.							
1888 June 2	E	-0.27	-0.8	1888 Sept. 23	E	-0.14	+0.8
4	B	- .37	-1.5	Oct. 8	E	+ .02	-0.4
8	E	- .12	-1.4	16	B	- .15	+0.6
21	B	- .14	0.0	Nov. 2	E	- .13	+0.3
30	E	- .07	-0.4	10	B	- .09	-0.6
89 Apr. 25	B	- .08	+0.9	16	B	- .16	-0.6
Mean		-0.175	-0.53	Mean		-0.108	+0.02
Corr			+0.01	Corr			-0.01
				Circle East.			
1889 Jan. 22	B	-0.14	+0.8				
23	E	+ .04	+1.3				
Feb. 1	B	- .09	+1.4				
Oct. 29	B	+ .15	+2.1				
Nov. 5	B	+ .24	+1.5				
6	B	+ .19	+1.8				
Mean		+0.065	+1.48				
Corr			-1.18				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
475. GR. 2343.				228. β HERCULIS.			
$\alpha = 16 \ 22 \ 1.046. \ \delta = 55 \ 27 \ 19.11.$				$\alpha = 16 \ 25 \ 29.430. \ \delta = 21 \ 43 \ 46.64.$			
Circle West.				Circle West.			
1888 June 6	E	-0.05	+1.5	1888 May 25	B	+0.05	-1.4
7	B	- .03	+0.6	28	E	+ .02	-0.2
15	B	- .02	+0.3	30	E	+ .01	[-3.1]
16	E	- .05	+0.1	June 2	E	+ .05	-0.5
22	E	- .04	+1.3	4	B	.00	-1.4
23	B	.00	-0.5	6	E	+ .01	-0.1
Mean.....		-0.032	+0.55	7	B	+ .04	-0.5
Corr.			+0.04	Mean.....		+0.026	-0.68
Circle East.				Corr.....			+0.42
1889 May 23	B	-0.07	+0.3	Circle East.			
June 5	E	- .08	+1.2	1889 May 23	B	-0.01	-0.8
19	E	[+ .15]	+1.8	June 5	E	+ .04	+0.1
25	B	- .05	+0.7	11	B	+ .01	-0.2
29	E	- .11	+0.7	16	B	+ .10	-0.3
July 1	B	- .05	+1.6	25	B	+ .01	+0.2
23	E	- .06	+1.3	29	E	+ .04	+0.2
Mean.....		-0.070	+1.09	July 1	B	+ .03	+0.6
Corr.			-0.74	5	E	.....	+0.8
226. DRACONIS.				10	E	+ .04	+0.3
$\alpha = 16 \ 22 \ 30.362. \ \delta = 61 \ 45 \ 47.48.$				Mean.....		+0.032	+0.10
Circle East.				Corr.....			-0.38
1889 July 5	E	.....	+1.6	229. A. DRACONIS.			
7	B	-0.36	+1.7	$\alpha = 16 \ 28 \ 11.863. \ \delta = 69 \ 0 \ 22.12.$			
10	E	- .27	+1.6	Circle West.			
Mean.....		-0.215	+1.63	1888 June 30	E	+0.02	+0.4
Corr.			-0.82	89 Apr. 25	B	+ .10	+0.9
226. η DRACONIS, S. P.				Mean.....		+0.060	+0.65
Circle East.				Corr.....			+0.06
1889 Dec. 8	B	-0.20	+1.5				
Corr.....			-1.04				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				<i>Circle East.</i>			
1889 June 11	B	+0.10	+1.2	1889 June 5	E	-0.06	+0.9
July 1	B	+ .04	+1.6	16	B	- .04	+0.4
5	E	.....	+1.7	19	E	- .02	+0.8
7	B	+ .06	+2.3	29	E	- .01	+0.9
10	E	- .09	+1.6	July 7	B	.00	+1.6
23	E	+ .10	+2.1	Mean.....	.....	-0.026	+0.92
Mean .....	.....	+0.042	+1.75	Corr .....	.....	.....	-0.52
Corr .....	.....	.....	-1.45				

229. A DRACONIS, S. P.

Circle East.

1889 Feb. 1	B	0.00	+0.3
Nov. 17	B	+ .05	+2.0
25 ¹	B	- .01	[+1.9]
Dec. 6	B	+ .08	+2.0
18	B	+ .14	+0.6
Mean .....	.....	+0.052	+1.22
Corr .....	.....	.....	-0.88

¹ Tel. mic. diminished 0.1 rev.230. σ HERCULIS.

$$\alpha = 16 \ 30 \ 33.412. \ \delta = 42 \ 39 \ 50.54.$$

Circle West.

1888 May 25	B	+0.01	-0.3
30	E	- .03	-1.4
June 4	B	- .01	0.0
8	E	- .03	-0.1
Mean .....	.....	-0.015	-0.45
Corr .....	.....	.....	-0.09

476. GR. 2373.

$$\alpha = 16 \ 35 \ 22.966. \ \delta = 77 \ 39 \ 54.20.$$

Circle West.

1888 May 28	E	-0.14	0.0
June 4	B	- .21	-0.6
6	E	+ .08	+1.0
7	B	- .30	+0.2
8	E	- .05	-0.2
30	E	- .16	+0.1
Mean .....	.....	-0.130	+0.08
Corr .....	.....	.....	-0.16

Circle East.

1889 June 5	E	-0.17	+0.9
11	B	- .08	+0.5
16	B	- .06	+0.1
19	E	- .21	+1.7
25	B	- .21	+0.5
29	E	- .06	+1.4
Mean .....	.....	-0.132	+0.85
Corr .....	.....	.....	-1.20

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
476. GR. 2373, S. P.				July 7			
Circle West.				B			
				— .13			
				+0.2			
				July 10			
				E			
				— .10			
				—0.3			
				July 23			
				E			
				— .08			
				+0.8			
				Mean.....			
				—0.100			
				+0.18			
				Corr.			
				—0.71			
				1888 Nov. 2			
				E			
				—0.40			
				+0.6			
				12			
				E			
				— .02			
				+0.5			
				16			
				B			
				— .20			
				—1.0			
				19			
				E			
				+ .16			
				—0.7			
				21			
				B			
				— .14			
				+0.1			
				22			
				B			
				.00			
				—1.0			
				23			
				B			
				+ .04			
				+0.5			
				Mean.....			
				—0.080			
				—0.14			
				Corr.....			
				— .06			
				Circle East.			
				1889 Jan. 22			
				B			
				—0.18			
				0.0			
				Feb. 1			
				B			
				— .12			
				+1.2			
				Oct. 29			
				B			
				— .02			
				+1.0			
				Nov. 6			
				B			
				+ .08			
				+1.3			
				9			
				B			
				— .05			
				+2.0			
				16			
				B			
				+ .06			
				+1.8			
				Mean.....			
				—0.038			
				+1.22			
				Corr.....			
				—1.12			
				231. ζ HERCULIS.			
				$\alpha = 16 \ 37 \ 8.417. \ \delta = 31 \ 48 \ 8.79.$			
				Circle West.			
				1888 May 39			
				E			
				—0.12			
				—2.7			
				June 2			
				E			
				— .10			
				—2.2			
				16			
				E			
				— .14			
				—2.0			
				Mean.....			
				—0.120			
				—2.30			
				Corr.....			
				+0.18			
				Circle East.			
				1889 July 1			
				B			
				—0.11			
				+0.3			
				5			
				E			
				— .08			
				—0.1			
				477. GR. 2377.			
				$\alpha = 16 \ 43 \ 12.745. \ \delta = 56 \ 58 \ 42.72.$			
				Circle West.			
				1888 May 28			
				E			
				—0.13			
				+0.5			
				30			
				E			
				— .20			
				—1.7			
				June 2			
				E			
				— .13			
				—0.1			
				4			
				B			
				— .08			
				—0.2			
				6			
				E			
				— .06			
				—0.2			
				7			
				B			
				— .15			
				+0.7			
				8			
				B			
				— .16			
				—0.2			

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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<i>Circle East.</i>				233. κ OPHIUCHI.			
1889 June 5	E	-0.11	+0.8	$\alpha = 16 \ 52 \ 27.660. \ \delta = 9 \ 32 \ 47.62.$			
11	B	- .12	+1.5	<i>Circle West.</i>			
16	B	- .13	+0.4	1888 May 28	E	-0.01	-0.6
19	E	- .18	+1.2	30	E	+ .03	-1.7
25	B	- .15	+0.4	June 2	E	+ .02	-0.8
29	E	- .19	+1.4	4	B	.00	-2.0
Mean		-0.147	+0.95	8	E	+ .05	-1.2
Corr			-0.87	15	B	+ .03	-1.5

478. 49 HERCULIS.				16	E	+ .02	-1.0
$\alpha = 16 \ 47 \ 4.372. \ \delta = 15 \ 9 \ 33.15.$				22	E	- .06	-1.0
<i>Circle West.</i>				30	E	+ .03	-1.1
1888 May 28	E	-0.04	-0.2	July 2	B	+ .07	-1.2
30	E	+ .01	-1.9	Mean		+0.018	-1.21
June 2	E	+ .01	-0.7	Corr			+0.57
4	B	- .02	-1.5	<i>Circle East.</i>			
6	E	- .07	-0.6	1889 June 5	E	+0.04	-1.1
8	E	.00	-0.8	11	B	- .02	-1.4
Mean		-0.018	+0.95	16	B	+ .08	-0.7
Corr			+0.67	19	E	+ .05	-0.3

<i>Circle East.</i>				29	E	+ .04	-0.3
1889 June 5	E	+0.01	+0.1	July 23	E	+ .11	+0.9
11	B	- .04	+0.6	Mean		+0.050	-0.48
16	B	+ .04	+0.1	Corr			-0.52
19	E	- .04	+0.7	234. ε HERCULIS.			
25	B	- .01	+0.1	$\alpha = 16 \ 56 \ 4.855. \ \delta = 31 \ 5 \ 19.26.$			
29	E	- .03	+0.4	<i>Circle West.</i>			
Mean		-0.012	+0.33	1888 June 23	B	+0.05	0.0
Corr			-0.81	July 10	B	+ .02	+0.1

Mean		+0.035	+0.05
Corr			+0.18

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
235. ϵ URSAE MINORIS. $\alpha = 16\ 57\ 15.427.$ $\delta = 82\ 13\ 2.34.$ <i>Circle West.</i>				235. ϵ URSAE MINORIS, S. P. <i>Circle West.</i>			
1888 May 28	E	-0.04	+1.6	1888 Sept. 23	E	+0.24	-0.8
30	E	-.07	-0.5	Oct. 8	E	+.23	-1.0
June 2	E	-.11	-0.1	16	B	.00	.....
4	B	+.05	+0.3	30	B	+.02	+0.5
6	E	+.05	+0.6	Nov. 2	E	+.03	+0.4
7	B	+.13	.....	10	B	-.03	-0.8
8	E	-.05	-0.3	12	E	-.05	+0.5
15	B	-.01	+0.2	16	B	-.05	-0.4
16	E	+.22	-0.2	19	E	+.11	-0.8
22	E	+.07	+1.0	21	B	+.31	-0.3
30	E	-.18	-0.7	22	B	+.04	-0.2
July 2	B	+.14	+0.1	23	B	+.49	+0.3
9	E	-.06	+0.7	91 Dec. 27	F	+.20	-0.9
10	B	+.03	+1.0	92 Jan. 9	F	+.62	-0.2
17	E	-.04	.....	14	F	+.41	.....
89 Apr. 25	B	+.15	+1.0	21	F	+.62	.....
Mean		+0.018	+0.34	Feb. 5	F	+.46	-0.4
Corr			-0.29	Mean		+0.215	-0.29
<i>Circle East.</i>				Corr			+0.09
1889 June 5	E	+0.01	+0.1	<i>Circle East.</i>			
11	B	+.08	+0.7	1889 Jan. 22	B	+0.12	.....
16	B	+.19	-0.1	23	E	+.16	+0.7
19	E	-.15	+1.1	Feb. 1	B	-.06	.....
25	B	+.05	+0.5	Oct. 20	B	+.52	.....
29	E	-.13	+0.6	29 ¹	B	+.15	.....
July 1	B	-.05	+1.2	Nov. 5	B	+.50	+1.2
5	E	+.06	+0.9	6	B	+.15	+1.0
7	B	+.02	+1.4	9	B	+.03	+1.5
10	E	+.16	+0.1	15	B	.....	+1.7
23	E	+.27	+1.4	16	B	+.20	+1.3
Mean		+0.046	+0.72	¹ Transit on three wires.			
Corr			-0.70				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Nov. 17	B	+ .21	+1.4	June 29	E	+ .04	-0.1
25	B	+ .01	+1.5	July 1	B	+ .04	+0.9
30	B	+ .03	+2.9	5	E	+ .08	+0.4
Dec. 6	B	+ .09	+0.5	Mean .....	.....	+0.050	+0.33
8	B	+ .09	+0.7	Corr .....	.....	.....	-0.65
12	B	- .02	+1.3	480. GR. 2415.			
18	B	+ .20	+1.5	$\alpha = 17 \ 4 \ 11.385. \quad \delta = 40 \ 39 \ 36.35.$			
20	B	.....	+0.9	<i>Circle West.</i>			
22	B	- .13	+1.3	1888 June 15	B	+0.06	-0.8
30	B	- .59	+1.4	16	E	+ .02	-0.9
91 Dec. 10	F	+ .04	+1.4	23	B	+ .07	-0.7
11	F	+ .33	.....	July 9	E	+ .14	+0.8
17	F	+ .07	.....	10	B	+ .12	-0.1
18	F	+ .33	+1.0	89 Apr. 25	B	+ .10	+0.1
23	F	+ .41	+2.1	Mean .....	.....	+0.085	-0.27
Mean.....	.....	+0.123	+1.33	Corr .....	.....	.....	+0.23
Corr .....	.....	.....	-0.87	<i>Circle East.</i>			
479. 60 HERCULIS.				1889 June 19	E	+0.02	+1.2
$\alpha = 17 \ 0 \ 16.618. \quad \delta = 12 \ 53 \ 32.30.$				25	B	.00	+1.4
<i>Circle West.</i>				29	E	- .07	+0.6
1888 June 4	B	0.00	-2.2	July 1	B	+ .05	+0.6
6	E	+ .03	-0.1	7	B	+ .03	+1.1
8	E	+ .02	-0.9	10	E	+ .04	+0.4
15	B	+ .02	-0.7	Mean .....	.....	+0.012	+0.88
16	E	- .02	-1.0	Corr .....	.....	.....	-0.95
22	E	+ .09	-0.5	236. ζ DRACONIS.			
Mean .....	.....	+0.023	-0.90	$\alpha = 17 \ 8 \ 28.144. \quad \delta = 65 \ 51 \ 0.58.$			
Corr .....	.....	.....	+0.50	<i>Circle West.</i>			
<i>Circle East.</i>				1888 June 23	B	-0.05	-0.3
1889 June 16	B	+0.02	-0.3	July 10	B	- .11	+0.5
19	E	- .02	+0.3	Mean .....	.....	-0.080	+0.10
25	B	+ .14	+0.8	Corr .....	.....	.....	-0.07

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				238. δ HERCULIS.			
				$\alpha = 17 \ 10 \ 30.793. \ \delta = 24 \ 58 \ 9.44.$			
				<i>Circle West.</i>			
1889 July 5	E	-0.06	+1.3	1888 June 15	B	-0.04	-0.8
10	E	- .07	+0.7	22	E	+ .02	-0.6
23	E	- .13	+1.1	July 2	B	+ .07	-0.5
Mean		-0.087	+1.03	9	E	+ .01	-0.4
Corr.			-1.01	Mean		+0.015	-0.58
236. ζ DRACONIS, S. P.				Corr.			+0.29
<i>Circle West.</i>				<i>Circle East.</i>			
1888 Nov. 22	B	+0.01	+1.2	1889 July 5	E	-0.04	+0.3
Corr.			-0.26	Corr.			-0.45
<i>Circle East.</i>				239. π HERCULIS.			
1889 Nov. 9	B	-0.03	+1.2	$\alpha = 17 \ 11 \ 12.941. \ \delta = 36 \ 56 \ 0.02.$			
Dec. 8	B	+ .08	+1.3	<i>Circle West.</i>			
Mean		+0.025	+1.25	1888 June 23	B	-0.01	-0.9
Corr.			-0.86	Corr.			+0.58
237. α HERCULIS.				<i>Circle East.</i>			
$\alpha = 17 \ 9 \ 37.888. \ \delta = 14 \ 30 \ 57.75.$				1889 June 25	B	-0.06	+1.8
<i>Circle West.</i>				29	E	- .04	+1.3
1888 May 28	E	0.00	+0.2	July 23	E	- .03	+1.6
June 6	E	- .05	+0.4	Mean		-0.043	+1.57
8	E	+ .02	-0.7	Corr.			-0.58
16	E	.00	-0.5	481. χ HERCULIS.			
30	E	+ .01	.....	$\alpha = 17 \ 23 \ 49.233. \ \delta = 48 \ 21 \ 8.69.$			
89 Apr. 25	B	.00	-0.3	<i>Circle West.</i>			
Mean		-0.003	-0.18	1888 May 28	E	+0.06	-0.1
Corr.			+0.59	June 15	B	+ .07	+0.6
<i>Circle East.</i>				16	E	+ .09	+0.4
1889 July 1	B	+0.03	+0.8	22	E	+ .10	+0.2
7	B	- .01	+0.9				
10	E	+ .03	+1.4				
Mean		+0.017	+1.03				
Corr.			-0.75				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
June 30	E	+ .10	+0.1	241. α OPHIUCHI.			
July 9	E	+ .09	+1.6	$\alpha = 17 \ 29 \ 49.679. \quad \delta = 12 \ 38 \ 26.00.$			
Mean		+0.085	+0.47	<i>Circle West.</i>			
Corr			+0.13				
<i>Circle East.</i>				1888 June 16	E	+0.02	-0.5
1889 June 19	E	+0.04	+0.8	22	E	+ .01	-0.1
25	B	+ .04	+2.4	23	B	+ .07	-0.7
29	E	- .02	+1.1	July 9	E	.00	+0.8
July 1	B	+ .11	+1.9	Mean		+0.025	-0.12
5	E	+ .05	+1.7	Corr			+0.50
7	B	+ .09	+2.0	<i>Circle East.</i>			
Mean		+0.052	+1.65	1889 June 19	E	+0.03	-0.4
Corr			-1.00	29	E	+ .02	+0.5
240. β DRACONIS.				July 1	B	+ .05	+1.2
$\alpha = 17 \ 27 \ 56.855. \quad \delta = 52 \ 22 \ 58.70.$				5	E	+ .06	+0.9
<i>Circle West.</i>				7	B	+ .01	+0.9
1888 June 15	B	-0.05	-0.5	10	E	+ .06	+0.1
July 2	B	- .07	0.0	23	E	.00	+0.5
10	B	- .01	+0.6	Mean		+0.033	+0.53
Mean		-0.043	+0.03	Corr			-0.64
Corr			+0.21	482. f DRACONIS.			
<i>Circle East.</i>				$\alpha = 17 \ 32 \ 24.174. \quad \delta = 68 \ 12 \ 17.90.$			
1889 June 25	B	-0.12	+1.7	<i>Circle West.</i>			
29	E	- .09	+1.2	1888 May 28	E	+0.14	+0.4
July 1 ¹	B	- .07	[+1.3]	June 15	B	+ .13	+0.6
5	E	- .08	+1.7	16	E	+ .01	+0.6
7	B	- .04	+1.1	22	E	+ .15	+0.5
10	E	- .05	+0.9	23	B	+ .14	+0.7
Mean		-0.075	+1.32	30	E	+ .09	+0.1
Corr			-0.92	July 10	B	+ .12	+1.2
¹ Tel. mic. diminished 0.3 rev.				Mean		+0.111	+0.59
				Corr			-0.13

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				244. ι HERCULIS.			
				$\alpha = 17 \ 36 \ 21.621. \ \delta = 46 \ 3 \ 54.17$			
				<i>Circle West.</i>			
1889 June 19	E	+0.07	+1.6	1888 June 7	B	-0.01	-0.3
25	B	+ .01	+2.4	Corr			+0.41
29	E	+ .03	+1.9	<i>Circle East.</i>			
July 1	B	- .02	+2.0	1889 July 10	E	-0.09	+0.4
5	E	+ .01	+1.9	23	E	- .10	+1.4
7	B	+ .08	+2.2	Mean		-0.095	+0.90
Mean		+0.030	+2.00	Corr			-0.67
Corr			-1.35				
482. f DRACONIS, S. P.				483. ω DRACONIS.			
<i>Circle West.</i>				$\alpha = 17 \ 37 \ 35.754. \ \delta = 68 \ 48 \ 31.09.$			
1888 Nov. 2	E	+0.09	+0.2	<i>Circle West.</i>			
10	B	- .06	-0.4	1888 May 28	E	-0.04	+1.3
12	E	+ .07	+0.1	June 15	B	- .12	+0.3
16	B	- .08	+0.1	16	E	- .15	+0.4
19	E	+ .10	-0.8	22	E	- .03	+0.8
22	B	+ .12	+0.6	23	B	- .03	+0.4
Mean		+0.040	-0.03	30	E	- .08	-0.1
Corr			-0.12	Mean		-0.075	+0.52
<i>Circle East.</i>				Corr			+0.01
1889 Jan. 22	B	+0.07	-0.9	<i>Circle East.</i>			
23	E	+ .02	+0.4	1889 June 19	E	-0.15	+2.0
Nov. 6	B	- .02	+0.7	25	B	- .15	+2.6
9	B	- .04	+2.2	29	E	- .18	+1.7
17	B	+ .13	+1.8	July 1	B	- .20	+2.3
Dec. 8	B	+ .04	+0.2	5	E	- .06	+2.2
12	B	+ .08	+0.4	7	B	- .15	+2.5
Mean		+0.040	+0.69	Mean		-0.148	+2.22
Corr			-0.83	Corr			-1.42

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
483. ω DRACONIS, S. P.				<i>Circle East.</i>			
<i>Circle West.</i>				1889 July 10	E	+0.08	0.0
1888 Nov. 2	E	+0.11	+0.5	Corr .....	.....	.....	-0.31
10	B	-.10	-1.7	246. μ HERCULIS.			
12	E	.00	+0.2	$\alpha = 17 \ 42 \ 9.230. \quad \delta = 27 \ 47 \ 7.12.$			
19	E	-.08	-0.7	<i>Circle West.</i>			
22	B	-.03	+0.4	1888 June 7	B	-0.04	.....
23	B	-.01	+0.5	July 2	B	-.02	-0.7
Mean .....	.....	-0.018	-0.13	9	E	-.05	+0.6
Corr .....	.....	.....	-0.10	Mean .....	.....	-0.037	-0.05
<i>Circle East.</i>				Corr .....	.....	.....	+0.32
1889 Jan. 22	B	-0.13	-0.3	<i>Circle East.</i>			
23	E	-.03	-1.5	1889 July 7	B	-0.04	+1.6
Nov. 16	B	-.26	+0.8	10	E	-.05	+0.4
Dec. 6	B	-.11	+0.2	Mean .....	.....	-0.045	+1.00
8	B	+.04	+0.1	Corr .....	.....	.....	-0.56
12	B	+.01	+1.2	247. γ OPHIUCHI.			
Mean .....	.....	-0.080	+0.08	$\alpha = 17 \ 42 \ 22.583. \quad \delta = 2 \ 44 \ 56.98.$			
Corr .....	.....	.....	-0.87	<i>Circle West.</i>			
245. β OPHIUCHI.				1888 July 11	E	-0.05	-0.5
$\alpha = 17 \ 38 \ 2.283. \quad \delta = 4 \ 36 \ 49.63.$				15	B	+.02	0.0
<i>Circle West.</i>				17	E	+.01	+0.2
1888 July 2	B	+0.03	-1.6	18	B	-.02	-1.1
9	E	+.02	+1.0	24	B	.00	-0.2
10	B	-.02	-1.2	Mean .....	.....	-0.008	-0.32
17	E	.00	0.0	Corr .....	.....	.....	+0.15
18	B	+.02	-0.8	28			
Mean .....	.....	+0.010	-0.52				
Corr .....	.....	.....	+0.18				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
484. ψ DRACONIS AUST.				Circle East.			
$\alpha = 17 \ 43 \ 53.643. \quad \delta = 72 \ 12 \ 9.53.$							
Circle West.							
1888 May 28	E	0.00	-0.5	1889 Jan. 22	B	+0.05	+0.8
June 15	B	+ .03	+0.1	23	E	+ .08	0.0
16	E	- .01	+0.3	Nov. 25	B	+ .20	+0.2
22	E	+ .13	+0.5	Dec. 8	B	+ .13	+0.8
23	B	+ .17	-0.2	12	B	+ .13	+1.0
30	E	+ .04	+0.3	18	B	+ .18	+0.6
July 10	B	+ .13	+0.8	Mean		+0.128	+0.57
Mean		+0.070	+0.19	Corr			-0.91
Corr			+0.14				
Circle East.				248. ξ DRACONIS.			
				$\alpha = 17 \ 51 \ 37.582^1. \quad \delta = 56 \ 53 \ 24.03.$			
				Circle West.			
1889 June 19	E	+0.05	+0.8	1888 June 23	B	+0.01	0.0
25	B	+ .02	+1.8	July 2	B	+ .04	+0.1
29	E	+ .02	+1.2	10	B	+ .06	+0.5
July 1	B	- .04	+1.1	18	B	- .01	+0.2
5	E	+ .17	+1.2	Mean		+0.025	+0.20
23	E	+ .02	+1.5	Corr			+0.08
Mean		+0.040	+1.27	Circle East.			
Corr			-1.11	1889 July 10	E	-0.06	+1.5
				Corr			-0.86
484. ψ DRACONIS AUST, S. P.				¹ Reduced to 1890.0 with the value of μ given in A. J. No. 246.			
Circle West.							
1888 Nov. 2	E	+0.02	+0.6	249. γ HERCULIS.			
10	B	+ .14	-2.0	$\alpha = 17 \ 52 \ 28.786. \quad \delta = 37 \ 15 \ 55.43.$			
12	E	+ .09	+0.4	Circle West.			
19	E	+ .08	-0.6				
22	B	+ .10	+0.1	1888 June 15	B	+0.02	-0.8
23	B	+ .18	0.0	22	E	- .02	-0.4
Mean		+0.102	-0.25	July 9	E	+ .06	+0.5
Corr			+0.27	11	E	+ .05	-1.0

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
July 17	E	+ .06	+0.6	485. 35 DRACONIS.			
24	B	+ .03	-0.3	$\alpha = 17.54 \ 22.440. \ \delta = 76 \ 58 \ 36.67.$			
91 Sept. 19	F	+ .06	-1.3	<i>Circle West.</i>			
Mean.....		+0.037	-0.39	1888 May 28 ¹	E	-0.22	+0.9
Corr.....			+0.54	June 15	B	+ .01	+0.7
<i>Circle East.</i>				16	E	- .17	+0.7
1889 June 19	E	+0.01	0.0	22	E	+ .06	+1.1
July 7	B	+ .06	+0.7	23	B	- .10	+0.1
Mean.....		+0.035	+0.35	30	E	- .14	+0.1
Corr.....			-0.62	July 2	B	+ .08	+0.3
250. ν OPHIUCHI.				10	B	+ .06	+1.2
$\alpha = 17 \ 52 \ 58.226. \ \delta = -9 \ 45 \ 33.29.$				Mean.....		-0.052	+0.64
<i>Circle West.</i>				Corr.....			-0.09
1888 June 30	E	-0.07	-0.9	¹ Transit on two wires.			
91 Sept. 13	F	+ .07	-1.6	<i>Circle East.</i>			
15	F	.00	-1.8	1889 June 19	E	+0.02	+1.2
Mean.....		0.000	-1.43	25	B	- .16	+2.3
Corr....			+0.31	29	E	- .05	+0.8
251. ξ HERCULIS.				July 1 [*]	B	- .14	+1.3
$\alpha = 17 \ 53 \ 29.426. \ \delta = 29 \ 15 \ 35.64.$				5	E	- .24	+1.4
<i>Circle West.</i>				7	B	- .01	+2.0
1888 July 18	B	-0.03	.....	Mean.....		-0.097	+1.50
252. γ DRACONIS.				Corr.....			-1.16
$\alpha = 17 \ 54 \ 3.099. \ \delta = 51 \ 30 \ 6.93.$				485. 35 DRACONIS, S.P.			
<i>Circle East.</i>				<i>Circle West.</i>			
1889 July 10	E	-0.04	+1.5	1888 Nov. 2	E	-0.10	+0.6
Corr.....			-1.04	10	B	+ .03	-1.7
				12	E	- .11	+0.5
				19	E	- .08	-0.9
				22	B	- .15	0.0
				23	B	+ .12	-0.2
				Mean.....		-0.048	-0.28
				Corr.....			-0.05

INDIVIDUAL RESULTS OF OBSERVATIONS.

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
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Circle East.

1889 Jan. 22	B	+0.13	+0.5
Nov. 6 ¹	B	— .31	[−2.3]
16	B	— .12	+1.5
25	B	+ .04	+0.8
30	B	+ .06	+0.6
Dec. 6	B	— .05	+0.8
8	B	— .05	+0.5
Mean		−0.043	+0.78
Corr.			−1.13

¹ Clouds; *n* uncertain.

253. 67 OPHIUCHI.

 $\alpha = 17 \ 55 \ 8.214.$ $\delta = 2 \ 56 \ 14.73.$ *Circle West.*

1888 July 11	E	−0.07	−1.2
17	E	— .07	+0.1
Mean		−0.070	−0.55
Corr.			+0.14

Circle East.

1889 July 10	E	−0.10	−0.1
Corr			−0.20

601. γ SAGITTARII. $\alpha = 17 \ 58 \ 44.511.$ $\delta = -30 \ 25 \ 29.61.$ *Circle West.*

1891 Sept. 13	F	+0.01	+0.6
15	F	— .02	+0.8
16	F	— .04	−0.7
19	F	— .14	+0.7
Mean		−0.048	+0.35
Corr			+0.28

254. 72 OPHIUCHI.

 $\alpha = 18 \ 2 \ 8.053.$ $\delta = 9 \ 32 \ 55.21.$ *Circle West.*

1888 May 28	E	−0.02	−0.7
June 15	B	.00	−1.1
22	E	+ .01	−0.5
30	E	+ .02	−0.5
July 15	B	+ .02	−0.8
17	E	+ .01	−0.1
21	E	— .06	−0.2
24	B	— .01	−0.4
Mean		−0.004	−0.54
Corr			+0.57

Circle East.

1889 July 10*	E	+0.05	+0.7
Corr			−0.52

255. α HERCULIS. $\alpha = 18 \ 3 \ 15.098.$ $\delta = 28 \ 44 \ 51.63.$ *Circle West.*

1888 July 10	B	+0.02	−0.4
18	B	.00	−0.9
20	B	— .02	−0.1
91 Sept. 12	F	— .07	−0.6
13	F	— .03	−0.7
15	F	— .04	−0.8
16	F	— .07	−1.5
19	F	.....	−0.2
Mean		−0.030	−0.65
Corr			+0.33

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				<i>Circle East.</i>			
1889 June 19	E	-0.02	-0.2	Sept. 19	F	.....	+0.6
25	B	+ .01	+1.5	21	F	- .13	.....
29	E	- .02	+0.2	Mean .....	.....	-0.199	+0.53
Mean .....	.....	-0.010	+0.50	Corr. ....	.....	.....	-0.35
Corr. ....	.....	.....	-0.64	<i>Circle East.</i>			
256. δ URSAE MINORIS.				1889 June 19	E	-0.10	+0.2
$\alpha = 18\ 7\ 47.594.$ $\delta = 86\ 36\ 41.72.$				25	B	+ .06	+1.3
<i>Circle West.</i>				29	E	+ .01	+0.6
1888 May 28	E	-0.02	+0.2	July 1	B	- .12	+1.4
June 15	B	+ .02	+0.6	5	E	- .09	+0.9
16	E	- .84	+0.8	7	B	- .03	+1.4
22	E	- .07	+0.9	10	E	- .25	+0.9
23	B	- .01	+0.1	23	E	- .08	+1.2
30	E	+ .16	-0.2	Mean .....	.....	-0.075	+0.99
July 2	B	- .02	-0.4	Corr. ....	.....	.....	-0.82
9	E	+ .05	+0.8	256. δ URSAE MINORIS, S. P.			
10	B	- .79	+0.6	<i>Circle West.</i>			
11	E	- .43	+0.1	1888 Jan. 27	B	-0.36	.....
15	B	+ .48	+0.3	Feb. 5	B	- .01	+0.1
17	E	- .35	+1.8	7	B	.....	-1.3
18	B	- .29	0.0	Nov. 2	E	- .38	+0.9
20	B	- .45	+1.2	10	B	+ .21	-1.4
21	E	- .84	+1.1	12	E	- .15	+0.8
24	B	- .59	+0.7	16	B	+ .03	+0.1
26	E	- .39	+0.5	19	E	- .77	-0.2
91 Sept. 12	F	- .06	+1.2	22	B	- .08	+0.2
13	F	- .01	+1.2	23	B	- .38	+1.2
15	F	+ .17	+0.4	30	E	- .19	+0.1
16	F	- .10	-0.1	Dec. 3	B	- .42	+0.5
17	F	- .06	-0.1	8	B	- .30	-0.8
				92 Feb. 5	F	- .27	-0.2

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Feb. 9	F	— .78	+0.9	July 18	B	+ .12	—0.4
16	F	— .25	—0.4	20	B	+ .14	0.0
Mean		—0.273	+0.03	Mean		+0.147	—0.26
Corr			—0.41	Corr			+0.04

*Circle East.**Circle East.*

1889 June 22	B	—0.10	+1.4
23	E	— .94	—0.7
Nov. 5	B	.....	+0.7
9	B	.00	+1.1
16	B	— .07	+1.5
17	B	— .03	+2.0
25	B	+ .08	.....
30	B	+ .36	.....
Dec. 6	B	.00	+0.9
8	B	— .21	+0.4
12	B	— .11	+0.6
18	B	+ .10	+1.0
22	B	— .13	+1.1
30	B	— .18	+1.1
90 Mar. 12	B	+ .03	.....
15	B	+ .06	.....
Mean		—0.076	+0.92
Corr			—0.74

486. GR. 2533.

 $\alpha = 18 \ 12 \ 13.351. \ \delta = 42 \ 7 \ 19.68.$ *Circle West.*

1888 June 23	B	+0.16	—0.8
July 2	B	+ .20	—0.3
11	E	+ .12	—1.3
15	B	+ .14	+0.8
17	E	+ .15	+0.2

1889 June 19	E	+0.06	—0.2
29	E	+ .09	+0.7
July 1	B	+ .17	+0.8
5	E	+ .10	+0.6
7	B	+ .19	+0.8
23	E	+ .07	+1.3
Mean		+0.113	+0.67
Corr			—0.74

487. 36 DRACONIS.

 $\alpha = 18 \ 13 \ 15.741. \ \delta = 64 \ 21 \ 35.74.$ *Circle West.*

1888 June 15	B	+0.05	+0.5
July 9	E	+ .13	+1.3
10	B	+ .03	+0.6
17	E	+ .05	+2.0
18	B	— .07	+0.1
21	E	— .07	+1.5
Mean		+0.020	+1.00
Corr			—0.15

Circle East.

1889 June 19	E	—0.08	+1.4
25	B	— .01	+2.0
29	E	— .01	+1.0
July 1	B	— .04	+1.0
5	E	+ .02	+1.4
7	B	+ .06	+2.2
Mean		—0.010	+1.50
Corr			—0.96

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
487. 36 DRACONIS, S. P.				Circle East.			
Circle West.				1889 June 25	B	+0.10	0.0
1888 Nov. 10	B	+0.08	-0.1	July 1	B	+ .12	-0.6
12	E	- .01	-0.4	10	E	+ .07	-0.8
19	E	+ .03	0.0	23	E	- .01	+0.1
23	B	+ .09	+0.6	Mean.....	.....	+0.070	-0.32
30	E	+ .12	-0.4	Corr. ....	.....	.....	-0.28
Dec. 3	B	+ .05	0.0	258. 109 HERCULIS.			
Mean .....	.....	+0.060	-0.05	$\alpha = 18 \ 19 \ 0.629. \ \delta = 21 \ 43 \ 12.06.$			
Corr .....	.....	.....	-0.18	Circle West.			
Circle East.				1888 May 28	E	-0.03	.....
1889 Jan. 22	B	+0.04	+2.5	June 16	E	.00	-0.4
23	E	+ .05	-0.2	22	E	- .03	+0.1
Nov. 9	B	+ .02	+1.5	July 9	E	+ .03	+0.2
16	B	+ .15	+1.7	10	B	+ .01	-0.1
17 ¹	B	+ .17	[+1.4]	11	E	+ .02	-1.1
25	B	+ .25	+1.8	15	B	+ .05	-0.4
Mean.....	.....	+0.113	+1.46	20	B	- .03	-0.1
Corr.....	.....	.....	-0.87	26	E	- .05	-0.3
¹ Tel. mic. increased 0.1 rev.				91 Sept. 21	F	+ .02	.....
257. η SERPENTIS.				Mean.....	.....	-0.001	-0.26
$\alpha = 18 \ 15 \ 37.036. \ \delta = -2 \ 55 \ 36.27.$				Corr.....	.....	.....	+0.42
Circle West.				Circle East.			
1888 May 28	E	+0.04	-1.7	1889 June 19	E	-0.03	+0.5
June 16	E	+ .03	-0.8	25	B	+ .01	.....
22	E	.00	-0.9	29	E	+ .02	0.0
July 20	B	+ .04	-1.1	July 5	E	- .04	+0.6
24	B	+ .01	-0.6	7	B	+ .04	+1.0
26	E	.00	-1.2	10	E	+ .02	+0.2
91 Sept 16	F	- .09	-2.0	Mean.....	.....	+0.003	+0.46
17	F	+ .05	.....	Corr.....	.....	.....	-0.38
21	F	.00	-1.8				
Mean.....	.....	+0.009	-1.26				
Corr.....	.....	.....	+0.22				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
488. <i>b</i> DRACONIS.							
$\alpha = 18 \ 22 \ 18.217. \ \delta = 58 \ 44 \ 13.12.$							
<i>Circle West.</i>							
1888 June 16	E	+0.01	+0.6	July 15	B	— .08	0.0
July 2	B	+ .01	—0.2	17	E	— .15	+1.4
9	E	+ .08	+1.3	18	B	— .06	+0.2
11	E	— .05	—0.1	21	E	— .18	—0.5
17	E	— .05	+1.6	24	B	— .08	0.0
18	B	+ .08	+0.7	Mean.....		—0.086	+0.17
20	B	— .02	+0.5	Corr.....			+0.23
Mean.....		+0.009	+0.63	<i>Circle East.</i>			
Corr.....			—0.07	1889 June 19	E	—0.06	+0.8
<i>Circle East.</i>				25	B	— .09	+2.1
1889 June 19	E	—0.06	+1.0	29	E	— .11	+0.5
25	B	— .13	+2.0	July 7	B	— .11	+1.7
29	E	— .08	+1.6	10	E	— .23	+0.9
July 1	B	— .04	+1.8	23	E	.00	+1.4
5	E	— .04	+1.7	Mean.....		—0.100	+1.23
7	B	— .01	+2.3	Corr.....			—1.19
Mean.....		—0.060	+1.73	489. φ DRACONIS, S. P.			
Corr.....			—0.86	<i>Circle West.</i>			
488. <i>b</i> DRACONIS, S. P.				1888 Nov. 2	E	—0.02	+0.3
<i>Circle East.</i>				10	B	— .02	—1.6
1889 Jan. 22	B	.....	+1.0	12	E	— .01	—0.3
Corr.....			—1.00	19	E	— .09	—0.4
489. φ DRACONIS.				22	B	— .05	—0.4
$\alpha = 18 \ 22 \ 20.115. \ \delta = 71 \ 16 \ 44.81.$				23	B	— .05	0.0
<i>Circle West.</i>				Mean.....		—0.040	—0.40
1888 June 23	B	—0.03	—0.3	Corr.....			+0.11
July 10	B	— .02	+0.4	<i>Circle East.</i>			
				1889 Jan. 23	E	—0.07	—0.5
				Nov. 9	B	— .01	+1.4
				16	B	+ .10	+1.5
				30	B	+ .01	+1.7

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
Dec. 6	B	+ .02	+1.5	490. GR. 2655.			
8	B	.00	+1.0	$\alpha = 18 \ 35 \ 3.783. \ \delta = 77 \ 27 \ 37.79.$			
Mean.....	.....	+0.008	+1.10	<i>Circle West.</i>			
Corr.....	.....	.....	-0.87				
259. χ DRACONIS, S. P.							
$\alpha = 18 \ 23 \ 2.338. \ \delta = 107 \ 18 \ 54.21.$							
<i>Circle West.</i>							
1888 Dec. 3	B	+0.10	+0.1	1888 June 23	B	-0.18	+0.3
8	B	+ .14	-0.5	July 9	E	- .08	+1.2
Mean.....	.....	+0.120	-0.20	11	E	- .17	+0.5
Corr.....	.....	.....	+0.31	18	B	- .28	+1.5
<i>Circle East.</i>				20	B	- .10	+1.5
				24	B	- .38	+1.3
				Mean.....	.....	-0.198	+1.05
				Corr.....	.....	.....	-0.14
				<i>Circle East.</i>			
1889 Dec. 12	B	-0.04	+1.5	1889 June 19	E	-0.10	+2.3
18	B	+ .12	+2.0	25	B	- .22	+2.6
22	B	+ .03	+1.8	29	E	- .34	+1.8
30	B	+ .05	+1.7	July 1	B	- .41	+2.1
Mean.....	.....	+0.040	+1.75	5	E	- .15	+2.4
Corr.....	.....	.....	-1.03	23	E	- .21	+2.0
260. α LYRAE.				Mean.....	.....	-0.238	+2.20
$\alpha = 18 \ 33 \ 12.854. \ \delta = 38 \ 40 \ 53.90.$				Corr.....	.....	.....	-1.19
<i>Circle West.</i>							
1888 June 16	E	-0.06	0.0	490. GR. 2655, S. P.			
July 21	E	- .04	-0.4	<i>Circle West.</i>			
Mean.....	.....	-0.050	-0.20				
Corr.....	.....	.....	+0.30				
<i>Circle East.</i>							
1889 June 29	E	-0.11	+0.3	1888 Nov. 12	E	-0.25	-0.4
July 5	E	- .10	+0.4	19	E	- .24	-1.4
7	B	- .02	+0.6	22	B	- .27	-0.9
10	E	- .07	+0.2	23	B	- .25	-0.4
Mean.....	.....	-0.075	+0.38	30	E	- .16	-1.0
Corr.....	.....	.....	-0.84	Dec. 3	B	- .05	-0.8
				Mean.....	.....	-0.203	-0.82
				Corr.....	.....	.....	-0.05

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				491. GR. 2640, S. P.			
1889 Jan. 22	B	-0.27	+0.6	<i>Circle West.</i>			
23	E	- .19	-0.4	1888 Nov. 12	E	+0.21	-0.6
Nov. 9	B	- .05	+1.2	19	E	+ .08	-0.3
16	B	- .10	0.0	22	B	+ .03	+0.4
17	B	+ .03	+0.7	23	B	+ .15	0.0
30	B	- .21	+0.1	30	E	+ .18	0.0
Mean		-0.132	+0.37	Dec. 3	B	+ .17	+0.4
Corr.			-1.12	Mean		+0.137	-0.02
				Corr			-0.25

491. GR. 2640.

 $\alpha = 18 \ 35 \ 52.428.$ $\delta = 65 \ 23 \ 24.09.$

<i>Circle West.</i>			
1888 July 2	B	+0.20	+0.4
10	B	+ .11	+1.5
15	B	+ .11	+0.9
17	E	+ .09	+1.1
20	E	.....	+1.1
21	E	- .03	.....
24	B	- .01	+1.3
Mean		+0.078	+1.05
Corr.			-0.10

Circle East.

1889 June 19	E	-0.01	+2.6
25	B	+ .17	+1.1
29	E	.00	+1.0
July 1	B	+ .11	+1.3
7	B	+ .14	+1.5
10	E	.00	+1.1
Mean		+0.068	+1.43
Corr.			-1.00

<i>Circle East.</i>			
1889 Dec. 6	B	+0.12	+1.0
8 ¹	B	+ .05	[-0.2]
12	B	+ .08	+0.2
30	B	+ .06	+0.8
Mean		+0.078	+0.67
Corr			-0.87
¹ Tel. mic. increased 0.1 rev.			

261. ϵ LYRAE PR. MED. $\alpha = 18 \ 40 \ 41.654.$ $\delta = 39 \ 33 \ 19.19.$ *Circle West.*

1888 June 16	E	+0.05	-1.0
Corr			+0.17

263. 110 HERCULIS.

 $\alpha = 18 \ 40 \ 55.645.$ $\delta = 20 \ 26 \ 28.71.$ *Circle West.*

1888 July 20	B	+0.01	0.0
21	E	- .03	+0.2
24	B	+ .03	-0.2
26	E	+ .01	+0.2

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
91 Sept. 13	F	+0.05	0.0	<i>Circle East.</i>			
15	F	+ .05	0.0	1891 Sept. 23	F	+0.05	+1.8
16	F	- .06	-0.5	25	F	.00	+1.3
19	F	.00	+0.1	26	F	+ .08	+1.1
Mean		+0.008	-0.02	Mean		+0.043	+1.40
Corr			+0.43	Corr			-0.37
<i>Circle East.</i>							
1889 July 5	E	+0.04	+0.8	266. γ SERPENTIS PR.			
91 Sept. 25	F	- .04	+0.5	$\alpha = 18 \ 50 \ 45.043. \ \delta = 4 \ 3 \ 39.98.$			
26	F	.00	.....	<i>Circle West.</i>			
Mean		0.000	+0.65	1888 July 21	E	+0.07	-1.0
Corr			-0.46	Corr			+0.14
264. β LYRAE.				<i>Circle East.</i>			
$\alpha = 18 \ 46 \ 1.126. \ \delta = 33 \ 14 \ 7.37.$				1889 June 19	E	-0.01	-1.4
<i>Circle West.</i>				July 10	E	- .02	-1.1
1888 July 24	B	+0.01	-1.2	Mean		-0.015	-1.25
26	E	+ .01	-0.2	Corr			-0.28
Mean		+0.010	-0.70				
Corr			+0.29	492. R LYRAE.			
603. ϵ SAGITTARII.				$\alpha = 18 \ 51 \ 59.271. \ \delta = 43 \ 48 \ 4.85.$			
$\alpha = 18 \ 48 \ 26.663. \ \delta = -26 \ 25 \ 57.91.$				<i>Circle West.</i>			
<i>Circle West.</i>				1888 June 16	E	+0.06	0.0
1891 Sept. 13	F	-0.06	+1.5	23	B	+ .01	-0.1
15	F	- .05	-0.1	July 2	B	.00	+0.1
17	F	- .08	-0.7	9	E	+ .06	-0.2
19	F	- .11	+0.3	10	B	+ .07	+0.5
21	F	- .08	0.0	11	E	+ .02	-0.4
Mean		-0.076	+0.20	Mean		+0.037	-0.02
Corr			+0.25	Corr			+0.12

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				<i>Circle East.</i>			
1889 June 25	B	0.00	+1.8	1889 June 19	E	-0.03	+0.2
29	E	-.08	+0.6	91 Sept. 26	F	+.04	+0.7
July 1	B	-.05	+1.1	Mean		+0.005	+0.45
5	E	-.08	+0.9	Corr			-0.78
10	E	-.04	+0.3				
23	E	-.06	+2.4				
Mean		-0.052	+1.18				
Corr			-0.52				
267. ϵ AQUILAE.				493. ν DRACONIS.			
$\alpha = 18 \ 54 \ 37.804. \ \delta = 14 \ 55 \ 9.32.$				$\alpha = 18 \ 55 \ 44.646. \ \delta = 71 \ 8 \ 59.92.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 July 18	B	+0.03	-0.6	1888 July 2	B	-0.07	-0.2
21	E	-.01	-0.4	9	E	+.15	0.0
26	E	-.01	+0.1	10	B	-.01	+0.9
91 Sept. 15	F	+.01	-0.7	11	E	-.14	-0.4
Mean		+0.005	-0.40	17	E	+.02	+1.6
Corr			+0.63	20	B	-.07	+0.8
<i>Circle East.</i>				Mean		-0.020	+0.45
1889 June 29	E	-0.03	+0.7	Corr			+0.25
Corr			-0.78				
268. γ LYRAE.				<i>Circle East.</i>			
$\alpha = 18 \ 54 \ 49.704. \ \delta = 32 \ 32 \ 20.46.$				1889 June 25	B	-0.12	+2.0
<i>Circle West.</i>				29	E	-.20	+1.4
1888 June 16	E	0.00	-1.1	July 1	B	-.16	+1.6
23	B	+.05	-1.3	5	E	-.12	+2.1
July 15	B	-.01	-0.7	10	E	-.14	+1.0
91 Sept. 12	F	-.03	-0.1	23	E	-.04	+1.7
13	F	-.02	0.0	Mean		-0.130	+1.63
22	F	+.01	.....	Corr			-1.21
Mean		0.000	-0.64				
Corr			+0.22				
493. ν DRACONIS, S. P.				<i>Circle West.</i>			
				1888 Nov. 10	B	+0.10	-1.3
				12	E	+.09	-1.0
				19	E	-.07	-0.2

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Nov. 22	B	— .12	0.0	269. λ AQUILAE.			
23	B	— .07	0.0	$\alpha = 19\ 0\ 24.647.$ $\delta = -5\ 2\ 49.23.$			
30	E	+ .05	+0.3	<i>Circle West.</i>			
Mean.....		—0.003	—0.37	1888 July 2	B	+0.08	—0.2
Corr.....			+0.06	11	E	+ .06	—1.1
<i>Circle East.</i>				17	E	— .01	+0.5
1889 Jan. 23	E	—0.10	—0.7	18	B	+ .02	+0.4
Nov. 16	B	+ .05	+1.5	20	B	+ .01	+0.1
17	B	+ .20	+1.8	26	E	+ .07	+0.6
Dec. 6	B	+ .06	+0.9	28	E	.00	—0.2
8	B	+ .01	+0.3	Mean.....		+0.033	+0.01
12	B	+ .05	+0.3	Corr... ..			+0.17
Mean		+0.045	+0.68	<i>Circle East.</i>			
Corr			—0.88	1889 June 19	E	+0.05	—0.6
270. ζ AQUILAE.				25	B	+ .09	+0.3
$\alpha = 19\ 0\ 21.228.$ $\delta = 13\ 42\ 1.18.$				July 5	E	+ .06	+0.3
<i>Circle West.</i>				7	B	+ .06	+0.2
1888 June 23	B	0.00	—1.2	23	E	+ .06	+1.2
July 9	E	— .09	—0.6	91 Sept. 25	F	+ .01	+0.3
10	B	+ .04	—0.6	26	F	+ .08	—0.1
15	B	+ .02	—0.5	Mean		+0.059	+0.23
21	E	+ .01	—0.9	Corr			—0.27
24	B	— .01	+0.7	494. ι LYRAE.			
91 Sept. 17	F	— .04	—1.7	$\alpha = 19\ 3\ 22.618.$ $\delta = 35\ 55\ 40.95.$			
22	F	+ .02	—0.7	<i>Circle West.</i>			
Mean		—0.006	—0.69	1888 June 23	B	—0.03	—1.6
Corr			+0.53	July 2	B	+ .01	—1.5
<i>Circle East.</i>				9	E	.00	—1.3
1889 June 29	E	+0.07	+0.5	10	B	+ .03	—0.3
July 1	B	+ .04	+0.3	11	E	— .04	—1.2
10	E	+ .02	+0.4	17	E	— .07	—0.1
Mean.....		+0.043	+0.40	18	B	+ .01	+0.5
Corr			—0.69	Mean		—0.013	—0.79
				Corr			+0.58

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				<i>Circle East.</i>			
1889 June 25	B	-0.05	+1.1	1889 June 25	B	+0.09	+1.8
29	E	- .09	+0.5	29	E	- .01	+1.2
July 1	B	- .08	+0.9	July 1	B	.00	+1.0
5	E	- .05	+0.5	5	E	- .03	+1.5
7	B	- .01	+1.3	7	B	+ .04	+1.4
10	E	- .06	-0.3	10	E	- .02	+0.3
Mean		-0.057	+0.67	Mean		+0.012	+1.20
Corr			-0.63	Corr			-0.73
271. δ DRACONIS.				495. ω AQUILAE.			
$\alpha = 19 \ 12 \ 31.703. \ \delta = 67 \ 28 \ 4.84.$				$\alpha = 19 \ 12 \ 39.189. \ \delta = 11 \ 23 \ 50.86.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 July 28	E	+0.01	+0.8				
Corr			-0.15	1888 July 2	B	-0.03	-1.2
271. δ DRACONIS, S. P.				9	E	- .07	-1.1
<i>Circle West.</i>				15	B	- .02	-0.8
1888 Dec. 8	B	+0.07	+0.3	20	B	+ .02	-1.3
10	E	+ .04	+0.7	21	E	+ .03	-1.5
Mean		+0.055	+0.50	26	E	- .03	-0.3
Corr			-0.19	Mean		-0.017	-1.03
496. γ LYRAE.				Corr			+0.50
$\alpha = 19 \ 12 \ 32.943. \ \delta = 37 \ 56 \ 16.71.$				<i>Circle East.</i>			
<i>Circle West.</i>				1889 June 25	B	+0.04	+0.7
1888 June 23	B	+0.05	-1.0	29	E	+ .08	-0.1
July 10	B	+ .13	+0.3	July 1	B	+ .08	+0.2
11	E	+ .06	-0.7	5	E	+ .01	+0.1
17	E	+ .08	+0.4	10	E	- .03	-0.4
18	B	+ .08	+0.1	23	E	- .03	+1.2
24	B	+ .01	+1.0	Mean		+0.025	+0.28
Mean		+0.068	+0.02	Corr			-0.61
Corr			+0.42				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
272. κ CYGNI.				<i>Circle East.</i>			
$\alpha = 19\ 14\ 33.650.$ $\delta = 53\ 9\ 56.21.$							
<i>Circle West.</i>							
1888 June 23	B	-0.05	-0.8	1889 July 10	E	-0.16	+0.9
July 2	B	- .07	-0.5	Sept. 27	B	- .09	+1.9
15	B	- .09	+0.2	Mean		-0.125	+1.40
28	E	- .02	+0.7	Corr			-1.08
91 Sept. 12	F	- .06	-0.5	273. τ DRACONIS, S. P.			
13	F	- .12	+0.5	<i>Circle West.</i>			
15	F	- .06	+1.2				
16	F	.....	+0.4	1888 Nov. 23	B	+0.03	+0.3
17	F	- .02	-0.4	Dec. 11	B	+ .26	-0.7
19	F	- .06	.....	Mean		+0.145	-0.20
21	F	+ .05	+0.2	Corr			+0.32
Mean		-0.050	+0.10	274. δ AQUILAE.			
Corr			+0.24	$\alpha = 19\ 19\ 57.117.$ $\delta = 2\ 53\ 45.07.$			
<i>Circle East.</i>				<i>Circle West.</i>			
1889 July 7	B	+0.01	+1.2	1888 June 23	B	+0.02	-0.9
Aug. 29	E	+ .02	+1.3	July 9	E	- .04	-0.2
91 Sept. 25	F	- .15	+0.3	10	B	+ .02	-0.8
26	F	- .02	+1.9	11	E	+ .03	-0.7
Mean		-0.035	+1.18	21	E	+ .03	-1.0
Corr			-0.82	27	B	+ .01	-0.3
273. τ DRACONIS.				28	E	+ .02	-0.4
$\alpha = 19\ 17\ 39.967.$ $\delta = 73\ 9\ 4.04.$				91 Sept. 17	F	- .04	.....
<i>Circle West.</i>				19	F	+ .02	-0.3
1888 July 11	E	-0.09	+0.1	21	F	- .06	-0.9
24	B	-0.01	+0.9	Mean		+0.001	-0.61
26	E	- .06	+0.5	Corr			+0.14
91 Sept. 13	F	+ .10	+0.5				
Mean		-0.015	+0.50				
Corr			+0.10				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>							
1889 June 25	B	+0.06	+0.8	July 1	B	— .04	+1.0
29	E	+ .07	+0.5	5	E	+ .03	+1.3
July 1	B	+ .05	+0.5	7	B	+ .05	+1.1
5	E	+ .08	+0.4	10	E	— .04	+0.4
7	B	+ .02	+0.5	23	E	+ .02	+1.7
10	E	+ .04	—0.7	Aug. 2	B	— .02	+1.2
23	E	+ .04	+1.2	4	E	— .09	+0.5
Aug. 5	B	+ .03	+0.5	5	E	— .02	+1.7
15	E	— .01	—0.4	15	E	— .05	+0.5
21	B	— .01	+0.3	21	B	— .03	+1.5
22	E	— .02	.....	22	E	+ .02	.....
24	B	+ .01	+0.6	Sept. 27	B	.00	+0.4
27	B	+ .03	+0.4	Mean		—0.011	+0.98
29	E	+ .06	+0.1	Corr			—0.54
91 Sept. 26	F	— .01	+0.3				
Mean		+0.029	+0.36				
Corr			—0.20				

275. β CYGNI. $\alpha = 19\ 26\ 17.102.$ $\delta = 27\ 43\ 43.86.$ *Circle West.*

1888 June 23	B	+0.01	—0.7
July 2	B	+ .01	—0.3
19	E	+ .04	—0.2
21	E	+ .01	—0.4
27	E	— .02	+0.2
91 Sept. 22	F	— .03	—0.4
Mean		+0.003	—0.30
Corr			+0.31

Circle East.

1889 June 25	B	+0.01	+0.8
29	E	+ .01	+0.6

276. γ CYGNI. $\alpha = 19\ 26\ 55.985.$ $\delta = 51\ 29\ 43.92.$ *Circle West.*

1888 July 24	B	—0.06	+0.6
27	B	— .08	+1.0
91 Sept. 12	F	— .05	+0.1
13	F	— .06	+0.4
15	F	— .06	+1.0
16	F	— .07	.....
17	F	— .04	—0.8
19	F	— .07	+0.3
21	F	— .06	+0.3
Mean		—0.061	+0.36
Corr			+0.15

Circle East.

1889 Aug. 24	B	—0.01	+1.6
27	B	— .06	+1.8
29	E	— .05	+1.4

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Sept. 20	B	— .08	+2.4	497. GR. 2900, S. P.			
91 Sept. 25	F	— .05	+0.2	<i>Circle West.</i>			
26	F	— .07	+2.0	1888 Nov. 10	B	+0.21	—1.4
Oct. 9	F	— .05	.....	12	E	+ .25	+0.6
10	F	— .07	+2.3	19	E	+ .36	—0.5
15	F	— .11	.....	22	B	+ .15	—0.8
20	F	— .09	+1.1	23	B	+ .32	+0.2
Mean.....		—0.064	+1.60	30	E	+ .32	0.0
Corr.			—1.04	Mean.....		+0.268	—0.32
				Corr.			—0.04

497. GR. 2900.

 $\alpha = 19\ 28\ 20.148.$ $\delta = 79\ 22\ 54.26.$ *Circle West.*

1888 July 2	B	0.00	—0.1
9	E	+ .48	+0.5
10	B	+ .24	+0.5
11	E	+ .02	+0.1
15	B	+ .26	+0.9
17	E	+ .37	+1.4
18	B	+ .28	+1.4
Mean		+0.221	+0.67
Corr			—0.20

Circle East.

1889 June 25	B	+0.14	+1.7
29	E	— .07	+0.5
July 1	B	+ .09	+0.7
5	E	+ .11	+1.0
7	B	+ .17	+1.1
10	E	— .06	+0.5
Mean		+0.063	+0.92
Corr			—1.05

1889 Nov. 9	B	+0.24	+2.5
16	B	+ .13	+1.0
Dec. 8	B	+ .44	+0.9
12	B	+ .17	+1.3
18	B	+ .33	+1.0
22	B	+ .17	+0.8
Mean		+0.247	+1.25
Corr			—1.09

498. ♀ CYGNI.

 $\alpha = 19\ 33\ 29.502.$ $\delta = 49\ 57\ 59.46.$ *Circle West.*

1888 June 23	B	—0.02	—1.1
July 2	B	— .05	—0.2
18	B	+ .05	+0.7
20	B	— .01	—0.1
26	E	+ .04	+0.2
27	B	— .11	+0.8
Mean		—0.017	+0.05
Corr			+0.03

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
<i>Circle East.</i>							
1889 June 29	E	-0.11	+1.0	Sept. 13	F	+1.66	+0.5
July 1	B	- .07	+1.5	15	F	-0.06	+1.9
7	B	+ .03	+1.3	16	F	+1.01	+1.0
10	E	- .01	+1.0	17	F	+0.25	+0.8
23	E	- .15	+2.0	19	F	+0.31	+0.7
Mean		-0.062	+1.36	21	F	+0.04	+0.8
Corr			-1.16	22	F	+0.15	+1.3
				Mean		+0.231	+0.98
				Corr			-0.28
				<i>Circle East.</i>			
284. λ URSAE MINORIS.							
$\alpha = 19\ 33\ 34.262.$ $\delta = 88\ 58\ 0.32.$							
<i>Circle West.</i>							
1888 June 23	B	-2.03	+0.3	1889 June 25	B	-0.80	+1.8
July 2	B	-1.04	+0.7	29	E	-0.47	+0.4
9	E	+0.08	+0.7	July 1	B	-0.24	+1.3
10	B	+0.57	+1.1	5	E	-1.15	+1.2
11	E	+1.13	+0.7	7	B	-0.51	+0.4
15	B	-0.38	+1.6	10	E	-0.26	+0.3
17	E	+0.03	+1.3	23	E	+0.09	+0.4
18	B	+0.23	+1.1	Aug. 2	B	+0.16	+0.9
19	E	0.00	+1.1	4	E	.....	+1.0
20	B	+0.20	+1.0	5	B	-0.13	+1.9
26	E	+2.70	+0.5	11	E	+0.13	+0.2
27	B	-0.67	+1.3	15	E	-0.04	+1.0
28	E	+1.25	+0.7	21	B	-0.08	+1.6
30	B	0.00	+1.6	22	E	+0.15	.....
Aug. 2	E	-0.11	+1.6	24	B	.....	+0.8
3	B	-0.51	+1.2	27	B	+0.14	+0.9
4	E	-0.17	+0.7	29	E	-0.03	+1.6
6	B	-0.26	+0.8	Sept. 6	B	.....	+1.6
16	B	+0.12	.....	20	B	+0.90	+1.5
20	B	-0.34	.....	21	B	-0.32	.....
91 Sept. 12	F	+2.31	+0.6	27	B	-1.77	+1.1
				91 Sept. 23	F	-0.29	.....
				25	F	+0.48	+0.6
				Oct. 9	F	-0.10	+1.7

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Oct. 10	F	+0.02	+2.4	<i>Circle East.</i>			
12	F	+ .01	.....	1889 Jan. 23	E	-0.74	-0.6
15	F	- .43	+1.6	Nov. 9	B	+0.01	+1.5
19	F	+ .56	+1.4	16	B	-0.27	+0.2
20	F	- .02	+1.4	17	B	-1.06	.....
21	F	+ .04	+0.8	30	B	-1.30	.....
Mean.....		-0.147	+1.15	Dec. 6	B	-0.26	+1 0
Corr.			-0.80	8	B	-0.05	+0.2
284. λ URSAE MINORIS, S. P.				12	B	-0.09	+0.4
<i>Circle West.</i>				18	B	-2.00	.....
1888 Nov. 10	B	-0.14	-0.7	22	B	-1.33	+0.5
12	E	-0.75	+0.1	30	B	-0.53	+0.3
19	E	-1.21	-0.4	90 Mar. 12	B	-1.54	+0.7
22	B	-0.66	-0.9	15	B	-1.08	+0.5
23	B	-1.04	+1.2	17	B	-0.04	+0.6
23	B	-0.66	+0.7	21	B	+0.47	+0.1
30	E	.....	0.0	26	B	+0.33	+0.4
Dec. 3	B	-0.76	.....	28	B	+0.14	.....
8	B	-2.50	+0.4	29	B	-0.07	+0.5
10	E	-0.16	-0.7	31	B	+0.01	.....
89 Mar. 19	B	+0.04	+0.3	Apr. 1	B	+0.25	.....
20	B	-0.18	+0.2	2	B	+0.54	.....
21	B	+0.06	+0.7	4	B	-0.05	.....
22	E	+0.08	.....	10	B	-0.01	.....
23	B	+0.37	.....	11	B	+0.01	.....
25	E	-0.50	.....	Mean		-0.361	+0.45
29	E	-0.01	.....	Corr.			-0.73
Apr. 2	B	+0.03	.....	499. 15 CYGNI.			
4	B	+0.83	.....	$\alpha = 19\ 40\ 18.601.$ $\delta = 37\ 5\ 19.91.$			
92 Feb. 5	F	-1.54	-0.2	<i>Circle West.</i>			
16	F	-1.68	.....	1888 July 10	B	-0.01	-0.9
Mean		-0.502	-0.02	11	E	- .03	-1.0
Corr			-0.28	18	B	+ .01	-0.1

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
July 20	B	— .04	—1.1	91 Sept. 25	F	+0.07	—0.2
26	E	.00	—0.7	Oct. 9	F	— .06	.....
27	B	— .02	—0.3	10	F	+ .04	+0.3
Mean		—0.015	—0.68	12	F	+ .01	.....
Corr			+0.56	19	F	— .01	+0.7
<i>Circle East.</i>				20	F	— .03	+0.3
1889 Aug. 2	B	—0.06	+0.5	21	F	+ .03	+0.2
4	E	— .02	+0.5	Mean		+0.018	+0.36
5	B	+ .01	+1.6	Corr			—0.59
11	E	— .02	+0.6	278. δ CYGNI.			
15	E	— .06	+0.9	$\alpha = 19 \ 41 \ 32.245. \ \delta = 44 \ 51 \ 44.71.$			
21	B	— .03	+1.4	<i>Circle East.</i>			
29	E	— .03	+0.8	1889 June 25	B	—0.07	+1.8
Mean		—0.030	+0.90	July 1	B	— .11	+1.6
Corr			—0.60	7	B	— .01	+1.0
277. γ AQUILAE.				Aug. 24	B	— .11	+1.3
$\alpha = 19 \ 41 \ 1.787. \ \delta = 10 \ 20 \ 44.11.$				27	B	— .04	+1.8
<i>Circle West.</i>				91 Oct. 12	F	— .08	.....
1888 July 28	E	—0.03	—1.0	Mean		—0.070	+1.50
30	B	— .05	—1.5	Corr			—0.79
Aug. 3	B	+ .01	—1.2	279. δ SAGITTAE.			
4	E	+ .04	—0.3	$\alpha = 19 \ 42 \ 28.945. \ \delta = 18 \ 15 \ 48.19.$			
91 Sept. 13	F	+ .01	—1.4	<i>Circle West.</i>			
16	F	— .08	—0.9	1888 July 9	E	+0.01	—1.2
17	F	+ .01	—1.4	10	B	+ .01	.....
Mean		—0.013	—1.10	15	B	+ .09	—0.6
Corr			+0.52	Aug. 2	E	+ .02	—1.3
<i>Circle East.</i>				91 Sept. 21	F	— .01	—2.3
1889 July 10	E	+0.07	—0.2	22	F	+ .03	—1.5
Sept. 6	B	+ .06	+1.7	Mean		+0.025	—1.38
20	B	.....	+0.3	Corr			+0.75
27	B	.00	+0.1				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>							
1889 Aug. 2	B	+0.05	-1.7	Aug. 15	E	-.03	+0.3
4	E	+.01	-0.2	21	B	-.03	+1.0
5	B	+.01	+0.6	24	B	+.01	+0.5
11	E	+.10	-0.5	27	B	-.01	+0.7
15	E	+.02	-0.6	Sept. 6	B	.....	+1.5
21	B	+.04	+0.2	20	B	-.01	.....
29	E	+.04	-0.3	21	B	-.02	.....
Sept. 21	B	.00	.....	91 Oct. 15	F	-.01	+0.3
91 Sept. 23	F	+.02	.....	Mean .....	.....	-0.002	+0.64
Oct. 15	F	-.03	.....	Corr. ....	.....	.....	-0.42
Mean .....	.....	+0.026	-0.36				
Corr .....	.....	.....	-0.39				
280. α AQUILAE.				281. η AQUILAE.			
$\alpha = 19 \ 45 \ 24.967. \ \delta = 8 \ 34 \ 41.41.$				$\alpha = 19 \ 46 \ 52.127. \ \delta = 0 \ 43 \ 25.41.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 July 2	B	0.00	-1.2	1888 July 30	B	+0.03	-0.3
9	E	+.01	-0.7	Aug. 4	E	+.05	+0.3
10	B	-.05	-1.0	91 Sept. 16	F	+.06	-0.3
15	B	-.09	-0.5	Mean .....	.....	+0.047	-0.10
Aug. 3	B	-.02	-1.1	Corr .....	.....	.....	+0.26
91 Sept. 19	F	-.04	-0.5	<i>Circle East.</i>			
Mean .....	.....	-0.032	-0.83	1889 Aug. 22	E	-0.01	-0.2
Corr .....	.....	.....	+0.64	Corr .....	.....	.....	-0.20
<i>Circle East.</i>							
1889 July 1	B	+0.02	.....	282. ε DRACONIS.			
5	E	+.01	+0.6	$\alpha = 19 \ 48 \ 32.558. \ \delta = 69 \ 59 \ 15.74.$			
7	B	.00	+0.4	<i>Circle West.</i>			
10	E	+.07	+0.3	1888 Aug. 3	B	-0.36	+0.4
23	E	-.09	+0.2	Corr .....	.....	.....	+0.31
Aug. 5	B	.00	+1.6	<i>Circle East.</i>			
11	E	+.06	+0.3	1889 Aug. 27	B	+0.11	+2.8
				Sept. 20	B	+.04	+2.3
				21	B	+.01	+2.0
				27	B	-.01	+2.0
				Mean .....	.....	+0.038	+2.28
				Corr .....	.....	.....	-1.43

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
282. ϵ DRACONIS, S. P.				91 Sept. 23	F	+ .03	.....
<i>Circle West.</i>				Oct. 9	F	- .03	+0.3
				10	F	+ .05	-0.4
				12	F	+ .07	+0.9
1889 Mar. 20	B	+0.31	-0.4	15	F	+ .02	+0.9
Corr .....	.....	.....	-0.13	19	F	- .01	-0.1
				20	F	- .02	-0.1
				21	F	+ .02	0.0
283. β AQUILAE.				Mean .....	.....	+0.027	+0.27
$\alpha = 19 \ 49 \ 54.572. \ \delta = 6 \ 7 \ 56.70.$				Corr .....	.....	.....	-0.35
<i>Circle West.</i>				285. ψ CYGNI.			
				$\alpha = 19 \ 52 \ 47.148. \ \delta = 52 \ 8 \ 49.02.$			
				<i>Circle West.</i>			
1888 July 2	B	+0.11	-1.1	1888 July 10	B	+0.01	+0.7
9	E	+ .04	-0.9	30	B	- .05	+0.5
10	B	- .02	-0.9	Aug. 4	E	- .06	+1.2
27	B	+ .13	+0.1	91 Sept. 16	F	.00	-0.1
28	E	+ .03	-0.6	17	F	+ .07	+0.2
Aug. 2	E	.00	-0.3	19	F	+ .04	+0.1
6	B	+ .02	-1.1	Mean .....	.....	+0.002	+0.43
91 Sept. 19	F	+ .05	-0.7	Corr .....	.....	.....	+0.20
22	F	+ .07	-0.2	<i>Circle East.</i>			
Mean .....	.....	+0.048	-0.63	1889 Sept. 6	B	.....	+2.8
Corr .....	.....	.....	+0.36	21	B	+0.01	+2.1
<i>Circle East.</i>				27	B	.00	+1.6
1889 July 23	E	-0.03	-0.1	91 Sept. 23	F	- .05	.....
Aug. 2	B	+ .12	+0.3	Oct. 20	F	- .05	+1.9
4	E	- .02	+0.5	21	F	- .13	+1.7
5	B	+ .09	+0.9	Mean .....	.....	-0.044	+2.02
11	E	+ .02	+0.5	Corr .....	.....	.....	-0.97
15	E	+ .05	+0.1				
21	B	+ .02	+0.9				
22	E	.00	-0.3				
29	E	+ .07	0.0				
Sept. 27	B	+ .03	.....				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
286. γ SAGITTAE.				Aug. 6			
$\alpha = 19\ 53\ 51.901.$ $\delta = 19\ 11\ 37.66.$				91 Sept. 16			
Circle West.				21			
1888 July 19	E	0.00	-0.4	22			
Aug. 3	B	.00	-1.4	Mean			
6	B	-.04	-1.1	Corr			
91 Sept. 12	F	.00	-2.5	Circle East.			
13	F	+.08	-1.9	1889 Aug. 22			
15	F	+.01	+0.2	24			
Mean.....		+0.008	-1.18	27			
Corr.....			+0.56	Sept. 6			
Circle East.				20			
1889 Aug. 2	B	+0.01	-0.8	21			
22	E	-.07	-0.4	27			
24	B	+.02	-0.1	91 Sept. 25			
Sept. 20	B	-.01	+1.2	Oct. 10			
91 Sept. 25	F	.00	-1.6	15			
Oct. 10	F	+.01	-0.2	19			
12	F	+.06	-0.3	20			
15	F	-.04	-0.1	21			
19	F	-.05	-0.6	Mean.....			
Mean.....		-0.008	-0.32	Corr			
Corr.....			-0.42	287. δ AQUILAE.			
287. δ AQUILAE.				$\alpha = 20\ 5\ 37.713.$ $\delta = -1\ 8\ 50.59.$			
Circle West.				Circle West.			
1888 July 28	E	+0.04	-0.4	1888 July 27			
30	B	+.08	-0.5	Aug. 6			
Aug. 2	E	.00	-0.5	Mean.....			
3	B	+.03	-1.5	Corr.....			
4	E	+.06	+0.8	288. α^1 seq. CYGNI.			
288. α^1 seq. CYGNI.				$\alpha = 20\ 10\ 10.080.$ $\delta = 46\ 24\ 28.33.$			
Circle West.				Circle West.			
1888 July 27				1888 July 27			
Aug. 6				Aug. 6			
Mean.....				Mean.....			
Corr.....				Corr.....			

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				606. α^1 CAPRICORNI.			
				$\alpha = 20 \ 11 \ 33.026. \ \delta = -12 \ 50 \ 51.67.$			
				<i>Circle West.</i>			
1889 Aug. 24	B	-0.09	+1.5	1891 Sept. 12	F	+0.06	-1.2
27	B	.00	+1.7	13	F	+ .02	-0.9
29	E	- .02	+0.9	15 ¹	F	+ .09	[+1.4]
Sept. 6	B	.....	+2.1	16	F	+ .06	-1.1
20	B	- .03	+1.7	17	F	+ .04	-1.2
21	B	- .05	+1.9	19	F	+ .05	-0.9
27	B	- .05	.....	21	F	- .02	-1.2
Mean		-0.040	+1.63	22	F	+ .05	-0.3
Corr.			-0.70	Mean.....		+0.044	-0.97
500. 33 CYGNI.				Corr.			+0.38
$\alpha = 20 \ 10 \ 50.500. \ \delta = 56 \ 13 \ 52.00.$				¹ Bad image.			
<i>Circle West.</i>				<i>Circle East.</i>			
1888 July 11	E	-0.10	+0.7	1891 Sept. 25	F	+0.12	+0.1
17	E	+ .07	+1.7	Oct. 10	F	+ .05	-0.1
18	B	+ .01	+0.7	12	F	+ .12	+1.5
19	E	+ .07	+1.1	15	F	+ .08	+0.6
20	B	- .10	+1.3	19	F	+ .01	+0.4
26	E	- .03	+1.4	20	F	+ .07	+0.8
Mean		-0.013	+1.15	21	F	- .02	+0.8
Corr.			+0.03	Mean		+0.061	+0.59
<i>Circle East.</i>				Corr.			-0.61
1889 Aug. 2	B	-0.06	+1.7	501. 24 VULPECULAE.			
4	E	- .13	+1.9	$\alpha = 20 \ 12 \ 4.664. \ \delta = 24 \ 19 \ 56.45.$			
5	B	- .08	+3.1	<i>Circle West.</i>			
11	E	- .08	+2.1	1888 July 18	B	+0.04	-0.1
15	E	- .12	+2.0	28	E	- .01	+0.3
21	B	- .04	+2.6	30	B	+ .04	+0.5
22	E	- .10	+1.7	Aug. 2	E	- .04	+0.8
Mean		-0.087	+2.16	3	B	+ .07	-0.2
Corr.			-0.77				

Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$	Date.	Obs'r.	$\Delta R_s A.$	$\Delta Dec.$
Aug. 4	E	— .01	+1.2	502. κ CEPHEI, S. P.			
Mean		+0.015	+0.42	<i>Circle West.</i>			
Corr.			+0.28	1888 Nov. 23	B	+0.15	+0.7
<i>Circle East.</i>				30	E	+ .22	—0.2
1889 Aug. 24	B	—0.01	+0.9	Dec. 8	B	+ .10	—0.3
27	B	— .02	+1.8	10	E	+ .19	—0.2
29	E	— .01	+1.0	89 Mar. 20	B	+ .35	—1.0
Sept. 20	B	+ .04	+2.0	22	E	+ .21	—0.2
21	B	+ .01	+2.2	Mean		+0.203	—0.20
27	B	.00	+0.4	Corr			—0.05
Mean		+0.002	+1.38	<i>Circle East.</i>			
Corr			—0.43	1890 Mar. 17	B	+0.18	+0.8
502. κ CEPHEI.				21	B	+ .19	+1.7
$\alpha = 20 \ 12 \ 34.937. \ \delta = 77 \ 22 \ 47.17.$				26	B	+ .24	+0.1
<i>Circle West.</i>				31	B	+ .22	+0.6
1888 July 17	E	+0.37	+1.6	Apr. 1	B	+ .14	+0.4
19	E	+ .18	+1.1	2	B	+ .15	+0.9
20	B	+ .06	+1.7	Mean		+0.187	+0.75
26	E	— .03	+1.1	Corr			—1.12
27	B	— .07	+1.7	289. γ CYGNI.			
28	E	— .02	+0.7	$\alpha = 20 \ 18 \ 16.858. \ \delta = 39 \ 54 \ 17.59.$			
Mean		+0.082	+1.32	<i>Circle West.</i>			
Corr			—0.14	1888 July 11	E	—0.06	+0.1
<i>Circle East.</i>				17	E	+ .01	—0.3
1889 Aug 2	B	+0.08	+2.3	18	B	— .02	—1.1
4	E	+ .21	+2.4	19	E	— .02	—0.4
5	B	+ .20	+2.6	20	B	— .03	—0.2
11	E	+ .04	+2.2	26	E	— .03	+0.1
15	E	+ .12	+1.6	27	B	— .02	—0.3
21	B	+ .05	+2.8	30	B	— .07	—0.1
22	E	+ .20	+1.9				
Mean		+0.129	+2.26				
Corr			—1.19				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Aug. 2	E	— .03	+0.1	291. η CEPHEI.			
4	E	.00	+0.3	$\alpha = 20 \ 27 \ 44.105. \quad \delta = 62 \ 37 \ 27.64.$			
91 Sept. 12	F	+ .02	[—2.9]	Circle West.			
17	F	— .11	—1.0	1888 July 30	B	0.00	+1.2
19	F	— .08	—0.4	Aug. 3	B	+ .11	+1.2
21	F	— .01	—0.7	6	B	— .04	+0.8
22	F	— .06	—0.2	16	B	— .06	+1.8
Mean		—0.034	—0.29	91 Sept. 13	F	+ .04	+0.7
Corr			+0.12	15	F	— .07	+1.6
Circle East.				Mean		—0.003	+1.22
				Corr			—0.17
1889 Aug. 2	B	—0.08	+0.1	Circle East.			
4	E	— .06	+1.3	1889 Aug. 5	B	—0.07	+2.2
5	B	— .07	+1.9	27	B	+ .05	+2.1
11	E	— .03	+1.3	Sept. 27	B	+ .01	+1.9
21	B	— .09	+1.4	Mean		—0.003	+2.07
22	E	— .09	+0.8	Corr			—0.82
24	B	— .04	+0.8	290. ε DELPHINI.			
27	B	— .06	+1.2	$\alpha = 20 \ 27 \ 57.455. \quad \delta = 10 \ 55 \ 46.87.$			
29	E	— .08	+0.8	Circle West.			
Sept. 20	B	— .05	+1.5	1888 July 27	B	+0.09	—0.1
21	B	— .06	.....	28	E	.00	—0.3
27	B	— .06	+0.5	Aug. 2	E	+ .02	—0.2
91 Sept. 25	F	— .01	—0.5	4	E	.00	0.0
Oct. 9	F	— .06	+0.5	91 Sept. 12	F	+ .14	—2.1
10	F	— .11	+0.3	16	F	+ .03	—0.8
12	F	— .03	+1.2	17	F	— .03	—1.2
15	F	— .01	+1.3	19	F	+ .04	—0.7
19	F	— .06	+0.4	22	F	+ .06	—0.6
20	F	— .04	+0.8	Mean		+0.039	—0.67
21	F	— .08	+0.4	Corr			+0.51
Mean		—0.058	+0.84				
Corr			—0.97				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>							
1889 Aug. 29	E	0.00	+0.4	Oct. 12	F	+ .01	+1.7
Sept. 20	B	- .03	+0.3	15	F	+ .01	+1.6
21	B	+ .03	+1.2	19	F	+ .03	+0.9
91 Sept. 25	F	+ .03	+0.1	20	F	+ .03	+1.3
Oct. 9	F	- .01	+1.0	Mean		+0.031	+1.12
10	F	- .03	-0.1	Corr.			-0.72
12	F	+ .03	+1.7				
15	F	+ .02	+1.4	504. 73 DRACONIS.			
19	F	- .03	.....	$\alpha = 20 \ 32 \ 57.207. \ \delta = 74 \ 34 \ 39.01.$			
20	F	- .02	+0.8	<i>Circle West.</i>			
21 ¹	F	[+ .14]	+1.8				
Mean		-0.001	+0.86	1888 July 11	E	-0.19	+0.5
Corr			-0.60	17	E	+ .24	+0.5
¹ Clouds; one bisection in Dec.				19	E	+ .07	+0.6
				20	B	+ .06	+0.5
292. β DELPHINI.				27	B	- .03	+0.9
$\alpha = 20 \ 32 \ 23.419. \ \delta = 14 \ 12 \ 45.93.$				Aug. 3	B	+ .02	-0.2
<i>Circle West.</i>				Mean		+0.028	+0.47
				Corr			+0.06
1888 Aug. 8	E	+0.02	+0.8	<i>Circle East.</i>			
16	B	.....	+0.5				
91 Sept. 12	F	+ .09	-2.2	1889 Aug. 2	B	-0.02	+0.5
13	F	+ .06	-1.4	4	E	+ .03	+1.9
15	F	+ .11	0.0	5	B	+ .02	+1.6
16	F	+ .03	-0.8	11	E	- .13	+1.6
17	F	+ .01	-0.9	15	E	- .02	+0.9
21	F	+ .01	0.0	21	B	- .09	+1.5
Mean		+0.047	-0.50	22	E	+ .06	+1.2
Corr			+0.56	Mean		-0.021	+1.31
<i>Circle East.</i>				Corr			-1.07
1889 Aug. 24	B	+0.08	+1.2				
27	B	+ .05	+1.3				
91 Oct. 9	F	+ .01	+0.9				
10	F	+ .03	+0.1				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
504. 73 DRACONIS, S. P.				Circle East.			
Circle West.				1889 Aug. 24	B	+0.05	+0.8
1888 Nov. 23	B	-0.07	0.0	27	B	- .01	+1.6
30	E	+ .13	-1.2	29	E	- .03	+1.1
Dec. 8	B	- .06	-0.8	Sept. 20	B	+ .01	+1.6
10	E	- .03	-0.3	21	B	.00	+2.1
89 Mar. 20	B	- .02	-0.3	27	B	- .06	+0.2
21	B	+ .17	+0.5	Mean		-0.007	+1.23
Mean		+0.020	-0.35	Corr			-0.54
Corr			+0.16	293. α DELPHINI.			
Circle East.				$\alpha = 20 \ 34 \ 31.713. \ \delta = 15 \ 31 \ 27.37.$			
1890 Mar. 17	B	-0.02	+1.4	Circle West.			
26	B	+ .07	+0.8	1888 Aug. 6	B	+0.01	-0.9
31	B	+ .03	+0.5	8	E	+ .01	+0.3
Apr. 1	B	.00	+1.1	91 Sept. 15	F	+ .05	0.0
2	B	- .07	+1.5	19	F	+ .02	-0.8
4	B	+ .07	+1.5	22	F	+ .01	.....
Mean.....		+0.013	+1.13	Mean		+0.020	-0.35
Corr.....			-1.31	Corr			+0.73
503. κ DELPHINI.				Circle East.			
$\alpha = 20 \ 33 \ 47.199. \ \delta = 9 \ 41 \ 56.49.$				1889 Aug. 2	B	+0.02	+0.7
Circle West.				4	E	- .02	+0.8
1888 July 18	B	+0.07	-1.9	11	E	- .03	+1.6
26	E	+ .02	+0.3	15	E	+ .06	+0.6
28	E	- .01	0.0	21	B	+ .02	+1.1
30	B	+ .03	-0.4	22	E	- .03	-0.2
Aug. 2	E	+ .04	+0.1	91 Sept. 23	F	+ .03	.....
4	E	+ .02	+0.5	25	F	+ .06	-0.2
Mean		+0.028	-0.23	Mean		+0.014	+0.63
Corr			+0.55	Corr			-0.84

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
294. α CYGNI.				Oct. 20	F	— .06	+1.2
$\alpha = 20 \ 37 \ 40.933. \ \delta = 44 \ 53 \ 14.79.$				21	F	— .07	.....
Circle West.				Mean .....	.....	—0.060	+1.18
				Corr. ....	.....	.....	—0.80
1888 July 18	B	0.00	—0.7	295. δ DELPHINI.			
27	B	— .08	+0.8	$\alpha = 20 \ 38 \ 19.403. \ \delta = 14 \ 40 \ 49.06.$			
Aug. 3	B	.00	—0.1	Circle West.			
8	E	— .02	+0.8	1888 July 11	E	0.00	+0.3
16	B	— .07	+0.1	17	E	+ .01	—0.5
91 Sept. 12	F	— .07	—0.5	19	E	— .02	—0.4
17	F	— .02	—1.3	20	B	+ .02	—1.2
19	F	— .06	—0.3	26	E	+ .03	—0.2
22	F	— .01	—0.6	30	B	+ .05	—1.0
Mean .....	.....	—0.037	—0.20	91 Sept. 13	F	+ .04	—0.6
Corr. ....	.....	.....	+0.33	Mean .....	.....	+0.019	—0.51
Circle East.				Corr. ....	.....	.....	+0.61
1889 Aug. 2	B	—0.04	+1.2	Circle East.			
4	E	— .16	+0.9	1889 Sept. 20	B	+0.01	+1.3
5	B	— .03	+1.6	27	B	+ .05	0.0
11	E	— .12	+1.4	Mean .....	.....	+0.030	+0.65
15	E	— .09	+0.8	Corr. ....	.....	.....	—0.76
21	B	— .08	+2.0	297. ε AQUARI.			
22	E	— .08	+0.6	$\alpha = 20 \ 41 \ 43.262. \ \delta = -9 \ 53 \ 53.37.$			
24	B	— .04	+1.3	Circle West.			
27	B	— .07	+1.9	1888 Aug. 8	E	—0.02	+0.6
29	E	+ .02	+1.3	91 Sept. 13	F	— .05	—0.4
Sept. 21	B	— .05	+1.7	Mean .....	.....	—0.035	+0.10
91 Sept. 23	F	— .09	+0.9	Corr. ....	.....	.....	+0.31
25	F	— .06	—0.2				
Oct. 9	F	— .04	+1.4				
10	F	— .07	+0.6				
12	F	— .04	+1.6				
15	F	— .05	+1.0				
19	F	+ .03	+1.3				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				<i>Circle East.</i>			
1891 Oct. 10	F	+0.07	+0.4	1889 Aug. 2	E	+0.07	+1.2
12	F	+ .08	+1.8	4	E	+ .05	+2.1
15	F	+ .12	+3.0	5	B	+ .05	+2.1
19	F	+ .05	+1.1	11	E	- .03	+1.8
20	F	+ .07	+1.3	15	E	+ .02	+1.3
21	F	+ .02	+2.3	21	B	+ .04	+2.4
Mean.....		+0.068	+1.65	22	E	- .01	+1.5
Corr.....			-0.37	Mean.....		+0.027	+1.77
				Corr.....			-0.87

298. ϵ CYGNI. $\alpha = 20 \ 41 \ 45.636. \ \delta = 33 \ 33 \ 30.37.$ *Circle West.*

1888 July 30	B	+0.03	-0.1
Aug. 16	B	- .03	-0.2
91 Sept. 16	F	- .03	-1.4
22	F	- .08	.....
Mean.....		-0.028	-0.57
Corr.....			+0.34

505. 6 H. CEPHEI.

 $\alpha = 20 \ 42 \ 37.239. \ \delta = 57 \ 11 \ 5.98.$ *Circle West.*

1888 July 11	E	0.00	-0.7
17	E	+ .17	+0.6
20	B	+ .06	+0.8
27	B	+ .03	+1.7
28	E	+ .05	+0.6
Aug. 4	E	+ .05	+0.9
Mean.....		+0.060	+0.65
Corr.....			+0.08

299. η CEPHEI. $\alpha = 20 \ 43 \ 3.095. \ \delta = 61 \ 24 \ 41.68.$ *Circle West.*

1888 Aug. 17	E	-0.11	+1.1
91 Sept. 15	F	- .04	+1.5
Mean.....		-0.075	+1.30
Corr.....			-0.11

299. η CEPHEI, S. P.*Circle East.*

1890 Mar. 12	B	+0.03	+1.4
21	B	.00	+0.4
31	B	+ .05	+0.5
Apr. 2	B	.00	+1.3
4	B	+ .02	+0.9
Mean.....		+0.020	+0.90
Corr.....			-1.03

506. λ CYGNI. $\alpha = 20 \ 43 \ 7.415. \ \delta = 36 \ 5 \ 12.14.$ *Circle West.*

1888 July 18	B	+0.08	-1.5
19	E	+ .12	-0.6

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
July 28	E	.00	-1.1	Aug. 29	E	-.06	+0.4
Aug. 2	E	+.03	0.0	Sept. 20	B	-.09	+1.5
3	B	+.12	-0.9	21	B	-.07	+1.4
6	B	+.03	-0.6	27	B	-.07	+0.8
Mean		+0.063	-0.78	Mean		-0.058	+0.85
Corr			+0.59	Corr			-0.53

Circle East.

1889 Aug. 24	B	+0.02	+1.0
27	B	+.02	+1.6
29	E	+.03	+0.5
Sept. 20	B	+.02	+1.1
21	B	-.02	+1.9
27	B	+.01	+0.5
Mean		+0.013	+1.10
Corr			-0.62

507. 32 VULPECULAE.

 $\alpha = 20 \ 49 \ 52.330. \ \delta = 27 \ 38 \ 21.93.$ *Circle West.*

1888 July 11	E	0.00	0.0
17	E	-.03	-0.2
20	B	-.02	.....
26	E	-.02	+0.6
28	E	-.05	0.0
Aug. 3	B	+.05	-0.6
Mean		-0.012	-0.04
Corr			+0.31

Circle East.

1889 Aug. 24	B	-0.04	+0.3
27	B	-.02	+0.7

508. 76 DRACONIS.

 $\alpha = 20 \ 50 \ 31.013. \ \delta = 82 \ 7 \ 23.99.$ *Circle West.*

1888 July 18	B	0.00	+0.7
19	E	+.30	+0.8
27	B	+.10	+2.0
Aug. 4	E	+.16	+1.2
6	B	+.09	+1.4
8	E	-.09	+1.4
Mean		+0.093	+1.25
Corr			-0.28

Circle East.

1889 Aug. 2	B	0.00	+1.4
4	E	+.22	+1.8
5	B	+.25	+1.4
11	E	+.08	+1.2
15	E	+.03	+0.9
21	B	+.05	+1.7
22	E	+.23	+1.4
Mean		+0.123	+1.40
Corr			-0.70

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
508. 76 DRACONIS, S. P.				July 18			
Circle West.				20			
1888 Nov. 23	B	+0.05	-0.2	Aug. 8			
30	E	+ .12	-1.4	16			
Dec. 8	B	- .17	-0.6	17			
10	E	- .09	-0.9	20			
89 Mar. 21	B	+ .16	-0.5	Mean.....			
22	E	- .05	-1.5	Corr.			
Apr. 2	B	.....	0.0	Circle East.			
92 Feb. 5	F	+ .28	.....	1889 Aug. 2			
16	F	+ .04	.....	4			
Mean		+0.042	-0.73	5			
Corr			+0.10	11			
Circle East.				15			
1890 Mar. 17	B	+0.09	+0.7	21			
21	B	- .06	-0.2	22			
26	B	+ .10	-0.2	Mean			
28	B	+ .05	+0.6	Corr.			
31	B	+ .17	+0.9	509. BR. 2749, S. P.			
Apr. 1	B	- .01	+0.3	Circle West.			
2	B	- .11	+0.5	1888 Nov. 30			
4	B	- .07	+0.6	Dec. 8			
16	B	+ .10	.....	10			
17	B	+ .12	.....	89 Mar. 20			
19	B	+ .01	.....	21			
Mean.....		+0.035	+0.40	22			
Corr.....			-0.87	23			
509. BR. 2749.				Mean			
$\alpha = 20 \ 52 \ 33.798. \quad \delta = 80 \ 8 \ 21.91.$				Corr			
Circle West.				1888 July 11			
1888 July 11				17			
17							

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				Oct. 20	F	— .06	+0.8
1890 Mar. 17	B	—0.28	+1.4	Mean.....		—0.028	+0.75
21	B	— .21	+0.5	Corr.			—0.94
26	B	— .28	+0.6	301. ξ CYGNI.			
28	B	— .34	+1.5	$\alpha = 21\ 0\ 55.823.$ $\delta = 43\ 29\ 27.68.$			
31	B	— .17	+1.5	<i>Circle West.</i>			
Apr. 1	B	— .32	+1.2	1888 July 11	E	—0.11	+1.2
Mean.....		—0.267	+1.12	18	B	— .12	0.0
Corr.....			—1.07	20	B	— .13	+0.7
300. ν CYGNI.				27	B	— .09	+1.3
$\alpha = 20\ 53\ 4.347.$ $\delta = 40\ 44\ 38.02.$				Aug. 2	E	— .12	+1.0
<i>Circle West.</i>				4	E	— .13	+1.7
1888 Aug. 2	E	+0.07	+0.8	8	E	— .14	+1.2
91 Sept. 12	F	+ .01	—1.0	16	B	— .17	+0.4
13	F	— .02	—1.3	17	E	— .17	+0.1
15	F	— .03	—0.1	20	B	— .22	+0.7
16	F	+ .01	—1.8	Mean.....		—0.140	+0.83
17	F	+ .03	.....	Corr.....			0.00
19	F	+ .03	—0.5	<i>Circle East.</i>			
21	F	— .08	—0.4	1889 Aug. 24	B	—0.24	+1.1
22	F	+ .03	—1.2	27	B	— .22	+0.9
Mean.....		+0.006	—0.69	29	E	— .21	+0.2
Corr.....			+0.25	Sept. 20	B	— .26	+0.8
<i>Circle East.</i>				27	B	— .25	+1.5
1891 Sept. 23	F	+0.02	+0.7	Mean.....		—0.236	+0.90
25	F	+ .03	—0.5	Corr.....			—0.46
Oct. 9	F	+ .03	+1.0	611. ν AQUARI.			
10	F	— .04	+0.3	$\alpha = 21\ 3\ 36.119.$ $\delta = -11\ 49\ 0.48.$			
12	F	— .07	+1.7	<i>Circle West.</i>			
15	F	— .08	+1.2	1888 July 11	E	—0.02	+1.4
19	F	— .05	+0.8	17	E	.00	—0.8
				Mean.....		—0.010	+0.30
				Corr.....			+0.31

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
519. BR. 2777.				Circle East.			
$\alpha = 21 \ 7 \ 41.334. \quad \delta = 77 \ 40 \ 48.36.$							
Circle West.							
1888 July 19	E	+0.27	+0.5	1890 Mar. 31	B	0.00	+1.2
20	B	+ .20	+0.8	Apr. 1	B	— .01	+0.7
27	B	.00	+1.5	2	B	— .16	+1.3
28	E	+ .08	+0.3	4	B	— .15	+1.2
Aug. 4	E	+ .12	+0.7	10	B	.00	+1.2
6	B	— .02	+1.3	16	B	+ .10	+0.5
Mean		+0.108	+0.85	Mean		—0.037	+1.02
Corr			—0.16	Corr			—1.12
Circle East.				303. ζ CYGNI.			
				$\alpha = 21 \ 8 \ 15.257. \quad \delta = 29 \ 46 \ 33.10.$			
				Circle West.			
1889 Aug. 2	B	+0.04	+1.1	1888 July 17	E	+0.05	0.0
4	E	+ .16	+1.1	18	B	+ .06	—0.7
5	B	+ .15	+1.5	Aug. 17	E	+ .01	—0.1
11	E	— .26	+1.9	20	B	— .04	—0.2
15	E	+ .04	+2.0	91 Sept. 12	F	+ .01	0.0
21	B	— .06	+2.4	17	F	— .03	—0.7
22	E	+ .16	+1.5	19	F	— .02	.....
Mean		+0.033	+1.64	Oct. 22	F	+ .04	—0.5
Corr.			—1.20	Mean		+0.010	—0.31
510. BR. 2777, S. P.				Corr.			+0.23
Circle West.				Circle East.			
1889 Mar. 21	B	+0.13	—0.3	1891 Oct. 10	F	0.00	+0.2
22	E	+ .14	—0.1	15 ¹	F	+ .05	+0.5
23	B	+ .41	+0.2	19	F	+ .02	+1.2
29	E	— .01	—1.3	20	F	+ .01	+0.8
Aug. 2	B	+ .18	+0.3	Mean .		+0.020	+0.68
4	B	+ .25	+0.3	Corr			—0.61
Mean		+0.183	—0.15	¹ One bisection in Dec.			
Corr			—0.06				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
511. GR. 3415.							
$\alpha = 21 \ 9 \ 0.213. \ \delta = 59 \ 32 \ 3.20.$							
<i>Circle West.</i>							
1888 July 26	E	0.00	+1.6	Aug. 17	E	.00	-1.0
28	E	+ .01	+1.1	20	B	+ .01	-0.5
Aug. 4	E	+ .03	+1.7	91 Sept. 17	F	0.0	.....
8	E	+ .01	+1.4	19	F	+ .03	-0.5
16	B	+ .03	+1.0	22	F	+ .01	-1.5
Mean.....		+0.016	+1.36	Oct. 22	F	- .01	.....
Corr.....			-0.12	23	F	- .01	-1.3
<i>Circle East.</i>				Mean		+0.014	-0.72
1889 Aug. 24	B	+0.03	+2.0	Corr.....			+0.19
27	B	+ .04	+2.0	<i>Circle East.</i>			
29	E	+ .02	+1.2	1889 Aug. 2	B	+0.07	+0.7
Sept. 20	B	.00	+1.4	4	E	- .04	+0.3
21	B	- .12	+2.1	5	B	+ .01	+0.6
27	B	- .02	+0.7	11	E	+ .01	.....
Mean.....		-0.008	+1.57	15	E	+ .09	+0.6
Corr.....			-0.89	21	B	+ .07	+0.8
304. α EQUULEI.				22	E	.00	+0.5
$\alpha = 21 \ 10 \ 19.487. \ \delta = 4 \ 47 \ 36.06.$				91 Sept. 23	F	+ .01	+0.1
<i>Circle West.</i>				Oct. 10	F	.00	-0.4
1888 July 11	E	+0.07	+0.3	21	F	+ .03	.....
17	E	- .01	-0.8	Mean		+0.025	+0.40
18	B	+ .02	-1.7	Corr.....			-0.32
19	E	+ .03	-0.5	305. τ CYGNI.			
20	B	+ .05	-0.8	$\alpha = 21 \ 10 \ 24.004. \ \delta = 37 \ 34 \ 33.95.$			
26	E	- .03	-0.3	<i>Circle West.</i>			
Aug. 2	E	+ .03	0.0	1888 July 28	E	-0.06	-0.8
				91 Sept. 12	F	+ .02	-1.3
				13	F	- .08	-1.8
				Mean		-0.040	-1.30
				Corr.....			+0.47

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
306. α CEPHEI.				512. 1 PEGASI.			
$\alpha = 21 \ 15 \ 57.247. \ \delta = 62 \ 7 \ 10.06.$				$\alpha = 21 \ 16 \ 59.922. \ \delta = 19 \ 20 \ 2.81.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 July 20	B	-0.03	+1.3	1888 July 11	E	+0.06	+0.3
28	E	+ .01	+1.5	17	E	+ .03	-0.8
Aug. 6	B	- .10	+2.9	18	B	+ .06	-1.2
8	E	.00	+2.2	19	E	+ .06	-0.4
16	B	- .08	+1.3	26	E	.00	-0.3
17	E	- .01	+1.0	27	B	+ .08	+0.2
20	B	- .07	+1.4	Mean		+0.048	-0.37
91 Sept. 16	F	- .04	+0.6	Corr			+0.53
Mean		-0.040	+1.52	<i>Circle East.</i>			
Corr			-0.13	1889 Aug. 4	E	0.00	+0.8
<i>Circle East.</i>				5	B	- .02	+0.8
1889 Aug. 11	E	-0.02	.....	15	E	+ .04	+0.5
27	B	- .06	+2.2	21	B	+ .01	+0.7
Sept. 20	B	- .10	+1.7	22	E	+ .04	+0.5
21	B	- .17	+2.6	24	B	+ .04	+0.6
91 Sept. 23	F	- .09	+2.4	Mean		+0.018	+0.65
25	F	.00	+1.5	Corr			-0.43
Oct. 12	F	- .18	+2.6	513. g CYGNI.			
Mean		-0.089	+2.17	$\alpha = 21 \ 23 \ 23.362. \ \delta = 46 \ 3 \ 19.80.$			
Corr			-0.81	<i>Circle West.</i>			
306. α CEPHEI, S. P.				1888 July 20	B	+0.09	+0.8
<i>Circle East.</i>				28	E	+ .07	+0.6
1890 Mar. 28	B	-0.04	+0.5	Aug. 4	E	+ .10	+1.7
Apr. 4	B	- .02	+0.9	16	B	+ .10	+0.1
10	B	.00	+0.5	17	E	+ .11	+0.8
Mean		-0.020	+0.63	22	B	+ .04	+0.2
Corr			-0.97	91 Oct. 22	F	+ .11	+0.9
				23	F	+ .03	+0.4
				Mean		+0.081	+0.69
				Corr			+0.42

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				308. β CEPHEI.			
				$\alpha = 21 \ 27 \ 14.394. \quad \delta = 70 \ 4 \ 40.13.$			
				<i>Circle West.</i>			
1889 Aug. 24	B	+0.03	+1.5	1888 July 27	B	-0.04	+1.0
27	B	+ .07	+2.4	Aug. 22	B	- .05	+0.4
29	E	+ .07	+1.2	23	E	- .08	+0.8
Sept. 20	B	+ .06	+1.6	24	B	.00	.....
21	B	.00	+2.5	27	E	- .16	-0.1
91 Oct. 10	F	+ 01	+1.0	29	B	- .23	.....
12	F	- .01	+1.5	Sept. 1	B	- .02	.....
15	F	.00	.....	91 Sept. 12	F	- .09	+1.4
19	F	+ .05	+1.4	15	F	- .10	+1.1
20	F	+ .03	+1.8	Oct. 22	F	+ .14	....
Mean		+0.031	+1.66	23	F	[- .61]	.....
Corr			-0.67	Mean		-0.063	+0.77
				Corr			+0.31

307. β AQUARI. $\alpha = 21 \ 25 \ 46.077. \quad \delta = -6 \ 3 \ 17.48.$

<i>Circle West.</i>				<i>Circle East.</i>			
1888 July 11	E	+0.04	+0.9	1889 Aug. 5	B	+0.07	+2.2
17	E	- .02	-0.7	15	E	- .10	+2.0
18	B	+ .04	-0.5	21	B	- .03	+2.7
19	E	- .01	-0.2	22	E	+ .21	+2.6
26	E	+ .02	+1.3	91 Oct. 10	F	- .06	+2.4
27	B	+ .06	+0.5	20	F	.00	.....
Aug. 21	E	- .05	-0.7	21	F	+ .05	+2.3
27	E	+ .03	.....	Mean		+0.020	+2.37
91 Sept. 17	F	- .01	.....	Corr			-1.41
19	F	+ .02	+0.2				
22	F	- .03	.....				
Mean		+0.008	+0.10	514. 74 CYGNI.			
Corr			+0.15	$\alpha = 21 \ 32 \ 32.405. \quad \delta = 39 \ 55 \ 9.63.$			
				<i>Circle West.</i>			
				1888 July 17	E	+0.05	+0.8
				18	B	+ .08	-0.1

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
July 19	E	+0.02	+0.6	Aug. 15	E	— .05	+1.6
27	B	+ .10	+1.4	21	B	+ .07	+0.9
28	E	— .06	+0.9	22	E	+ .06	+1.8
Aug. 16	B	— .04	+0.5	Mean.....	.....	+0.032	+1.42
Mean .....	.....	+0.025	+0.68	Corr .....	.....	.....	—0.87
Corr .....	.....	.....	+0.11				

Circle East.

1889 Aug. 2	B	—0.02	+0.6
4	E	— .15	+1.3
5	B	.00	+2.8
15	E	— .06	+1.8
21	B	+ .01	+2.2
22	E	— .01	+2.6
Mean .....	.....	—0.038	+1.88
Corr .....	.....	.....	—0.97

515. 13 H. CEPHEI.

 $\alpha = 21 \ 35 \ 32.830. \quad \delta = 56 \ 59 \ 29.87.$ *Circle West.*

1888 July 20	B	+0.07	+0.4
26	E	+ .09	+0.8
28	E	.00	+0.6
Aug. 3	B	+ .07	+1.0
6	B	+ .03	+1.5
8	E	+ .06	+1.7
Mean .....	.....	+0.053	+1.00
Corr .....	.....	.....	+0.09

Circle East.

1889 Aug. 2	B	+0.02	+1.5
4	E	+ .03	+1.1
5	B	+ .06	+1.6

309. ϵ PEGASI. $\alpha = 21 \ 33 \ 47.003. \quad \delta = 9 \ 22 \ 15.27.$ *Circle West.*

1888 July 17	E	—0.01	—1.0
19	E	— .04	—0.5
26	E	— .08	—1.2
27	B	— .01	—0.4
Aug. 3	B	— .03	—1.4
4	E	+ .03	+0.3
16	B	+ .02	—1.2
17	E	— .04	—0.1
20	B	— .02	—0.7
21	E	— .04	—1.8
22	B	— .04	—1.1
23	E	— .07	—1.2
24	B	— .04	.....
27	E	— .06	.....
29	B	— .03	.....
Sept. 1	B	— .02	.....
91 Sept. 15	F	+ .08	—0.2
19	F	— .05	—0.5
21	F	— .07	—1.2
22	F	— .05	—1.4
Oct. 22	F	+ .01	—0.5
23	F	+ .01	—1.6
Mean .....	.....	—0.025	—0.87
Corr .....	.....	.....	+0.59

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				<i>Circle East.</i>			
1889 Aug. 2	B	+0.03	+0.3	Aug. 24	B	+ .06	.....
4	E	- .03	-0.2	29	B	+ .05	.....
15	E	+ .02	+0.2	91 Sept. 16	F	+ .08	-1.1
21	B	- .06	+0.8	Mean.....		+0.055	-0.16
22	E	- .01	+0.8	Corr.....			+0.30
24	B	- .02	+0.3	<i>Circle East.</i>			
29	E	- .03	+0.5	1889 Aug. 27	B	+0.03	+1.3
Sept. 20	B	- .08	.....	Corr.....			-0.45
27	B	- .01	-0.7	516. 11 CEPHEI.			
91 Sept. 23	F	.00	+0.2	$\alpha = 21 \ 40 \ 18.494. \quad \delta = 70 \ 48 \ 18.02.$			
25	F	.00	-0.7	<i>Circle West.</i>			
Oct. 9	F	- .02	+0.4	1888 July 28	E	-0.02	+0.4
10	F	- .03	-0.2	Aug. 3	B	- .13	+0.1
12	F	- .03	-0.5	6	B	- .10	+1.3
15	F	- .01	+0.2	8	E	+ .02	+1.8
19	F	+ .03	0.0	16	B	.00	-0.5
21	F	[+ .12]	+0.1	17	E	- .01	+0.4
Mean.....		-0.016	+0.09	20	B	- .19	+0.3
Corr.....			-0.50	Mean.....		-0.061	+0.54
310. κ PEGASI.				Corr.....			+0.27
$\alpha = 21 \ 39 \ 39.791. \quad \delta = 25 \ 8 \ 22.44.$				<i>Circle East.</i>			
<i>Circle West.</i>				1889 Aug. 5	E	+0.06	+1.6
1888 July 19	E	+0.03	-0.7	21	B	+ .08	+1.6
20	B	+ .12	+0.6	24	B	- .07	+2.1
26	E	+ .08	-0.1	29	E	.00	+1.8
Aug. 4	E	+ .02	+0.8	Sept. 23	B	+ .02	+1.9
21	E	+ .02	-0.6	21	B	- .06	+2.5
22	B	+ .03	+0.3	Mean.....		+0.005	+1.92
23	E	+ .06	-0.5	Corr.....			-1.26

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
516. 11 CEPHEI, S. P.				Circle East.			
Circle West.				1889 Aug. 2	E	0.00	+0.8
1889 Mar. 19	B	+0.03	+0.1	4	E	-.07	+1.2
21	B	+.05	-0.9	15	E	-.12	+1.3
22	E	+.07	+0.3	22	E	+.01	+2.1
23	B	+.16	+1.1	27	B	+.01	+1.8
29	E	+.10	-2.0	Sept. 27	B	-.10	+1.4
Mean.....		+0.082	-0.28	Mean		-0.045	+1.43
Corr.			+0.01	Corr			-1.07
Circle East.				518. 16 PEGASI.			
1890 Mar. 12	B	+0.03	+1.3	$\alpha = 21 \ 48 \ 3.428. \quad \delta = 25 \ 24 \ 27.79.$			
17	B	+.19	+0.6	Circle West.			
31	B	+.02	+1.5	1888 July 28	E	-0.02	-0.5
Apr. 4	B	-.05	+0.7	Aug. 3	B	+.03	-0.7
16	B	-.06	+1.0	6	B	+.04	-0.3
17	B	-.06	+0.8	8	E	-.09	+0.5
Mean		+0.012	+0.98	17	E	+.01	0.0
Corr			0.8 9	20	B	-.01	0.0
517. π^2 CYGNI.				Mean		-0.007	-0.17
$\alpha = 21 \ 42 \ 43.796. \quad \delta = 48 \ 48 \ 2.23.$				Corr			+0.33
Circle West.				Circle East.			
1888 July 28	E	-0.01	0.0	1889 Aug. 2	B	-0.05	+0.4
Aug. 3	B	-.04	+0.3	4	E	+.06	+1.6
6	B	-.03	+1.3	5	B	+.03	+0.8
8	E	-.11	+1.8	15	E	-.03	+1.9
16	B	-.05	-0.1	21	B	+.08	+1.1
17	E	+.06	+0.4	22	E	+.05	+0.8
20	B	-.07	+0.9	Mean		+0.023	+1.10
Mean		-0.036	+0.66	Corr			-0.45
Corr			+0.06				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
519. 20 PEGASI.				Oct. 22	F	+ .01	-1.1
$\alpha = 21 \ 55 \ 43.834. \ \delta = 12 \ 35 \ 35.08.$				23	F	- .03	-1.3
<i>Circle West.</i>				Mean.....		+0.016	-0.63
1888 July 28	E	0.00	+0.2	Corr.....			+0.26
Aug. 3	B	+ .01	-0.2	<i>Circle East.</i>			
6	B	- .02	+0.3	1889 Aug. 2	B	+0.04	0.0
8	E	- .08	+1.2	4	E	+ .03	-0.1
16	B	.00	-0.9	5	B	+ .07	0.0
17	E	- .09	+0.4	15	E	+ .05	0.0
Mean.....		-0.030	+0.17	21	B	+ .07	+1.1
Corr.....			+0.50	22	E	+ .01	+0.3
<i>Circle East.</i>				24	B	+ .07	+0.2
1889 Aug. 2	B	+0.03	+1.2	27	B	+ .12	+0.1
4	E	- .04	+1.2	Sept. 21	B	+ .09	.....
15	E	+ .01	+0.6	27	B	+ .01	.....
22	E	- .13	+0.6	91 Sept. 25	F	+ .05	-0.4
24	B	- .04	+1.4	Oct. 9	F	+ .03	+0.1
27	B	- .03	+1.4	20	F	+ .04	+0.4
Mean.....		-0.033	+1.07	Mean.....		+0.052	+0.15
Corr.....			-0.64	Corr.....			-0.26
311. α AQUARI.				520. 20 CEPHEI.			
$\alpha = 22 \ 0 \ 8.024. \ \delta = -0 \ 51 \ 14.50.$				$\alpha = 22 \ 1 \ 39.860. \ \delta = 62 \ 14 \ 56.77.$			
<i>Circle West.</i>				<i>Circle West.</i>			
1888 Aug. 6	B	+0.10	-0.9	1888 July 28	E	+0.04	+0.8
17	E	.00	0.0	Aug. 3	B	+ .12	+0.2
20	B	+ .04	0.0	6	B	- .03	+1.1
21	E	.00	-0.3	8	E	[+ .40]	+1.0
22	B	+ .02	-0.2	16	B	+ .04	+0.2
23	E	+ .03	-0.7	17	E	+ .02	+0.7
91 Sept. 21 ¹	F	+ .04	[-1.1]	Mean.....		+0.038	+0.67
22	F	- .05	-1.2	Corr.....			-0.14
¹ Tel. mic. increased 0.25 rev.							

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
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<i>Circle East.</i>				312. ι PEGASI.			
				$\alpha = 22 \ 1 \ 53.407. \quad \delta = 24 \ 48 \ 28.47.$			
				<i>Circle West.</i>			
1889 Aug. 24	B	-0.03	+1.3	1888 Aug. 22	B	-0.03	+0.6
27	B	.00	+1.4	23	E	.00	-0.6
29	E	+ .11	+0.6	27	E	- .16	0.0
Sept. 20	B	- .01	+0.8	91 Sept. 16	F	.00	-1.1
21	B	- .04	+1.9	17	F	+ .05	-0.3
27	B	.00	+0.3	Mean		-0.028	-0.28
Mean		+0.005	+1.05	Corr			+0.29
Corr			-0.81	<i>Circle East.</i>			

520. 20 CEPHEI, S. P.							
<i>Circle West.</i>							
1889 Mar. 21	B	+0.07	0.0	1889 Aug. 4	E	0.00	+0.6
22	E	+ .14	+0.5	15	E	- .02	+0.9
23	B	+ .16	+1.4	21	B	+ .05	+1.7
29	E	+ .22	-0.6	22	E	- .02	+0.8
Apr. 4	B	+ .19	+1.2	Mean		+0.002	+1.00
5	E	+ .01	-1.1	Corr			-0.44
Mean		+0.132	+0.23	314. ς PEGASI.			
Corr			-0.22	$\alpha = 22 \ 4 \ 39.062. \quad \delta = 5 \ 39 \ 24.68.$			
<i>Circle East.</i>				<i>Circle West.</i>			
1890 Mar. 12	B	+0.12	+1.4	1888 July 28	E	-0.04	-0.4
17	B	+ .08	+0.7	Aug. 3	B	.00	-0.6
26	B	+ .11	+0.7	6	B	+ .02	-0.7
31	B	- .09	+0.5	16	B	+ .02	-0.7
Apr. 1	B	+ .07	+1.0	21	E	- .02	-0.7
4	B	+ .03	+1.1	22	B	- .03	+0.2
Mean		+0.053	+0.90	23	E	- .02	-1.4
Corr			-0.95	27	E	.....	-0.2
				91 Sept. 21	F	- .03	-0.8
				22	F	- .03	.....

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Oct. 22	F	— .05	[—5.9]
23	F	— .05	—2.2
Mean		—0.021	—0.75
Corr			+0.29

Circle East.

1889 Aug. 2	B	—0.02	+0.9
5	B	+ .01	+0.8
15	E	.00	+0.4
22	E	— .02	+0.6
24	B	+ .03	+0.5
29	E	— .03	—0.1
91 Sept. 23	F	+ .04	+0.1
25	F	.00	+0.3
Oct. 9	F	+ .03	+0.1
10	F	— .03	+0.3
15	F	— .03	+0.5
19	F	— .02	+0.3
20	F	— .02	+1.2
21	F	— .03	+1.0
Mean		—0.006	+0.49
Corr			—0.35

315. π PEGASI. $\alpha = 22 \ 5 \ 6.128. \quad \delta = 32 \ 38 \ 19.32.$ *Circle West.*

1888 Aug. 27	E	—0.14	—0.2
Corr.			+0.23

316. ζ CEPHEI. $\alpha = 22 \ 7 \ 2.232. \quad \delta = 57 \ 39 \ 32.73.$ *Circle West.*

1888 Aug. 20	B	+0.01	+0.8
22	B	— .01	+1.0

Aug. 23	E	+ .05	—0.1
27	E	— .02	—0.3
91 Sept. 16	F	+ .13	0.0
17	F	+ .07	+0.1
21	F	+ .01	+0.6
22	F	+ .11	—0.1
Oct. 22	F	+ .19	+0.5
23	F	.00	+0.2
Mean		+0.054	+0.27
Corr			+0.05

Circle East.

1889 Aug. 24	B	—0.02	+1.4
27	B	+ .04	+1.6
29	E	+ .05	+1.0
Sept. 20	B	.00	+1.5
21	B	+ .04	+2.4
27	B	.00	+1.6
91 Oct. 10	F	+ .02	+0.7
15	F	— .08	.....
19	F	+ .02	+1.7
20	F	+ .03	+1.6
21	F	— .11	+1.5
Mean.....		—0.001	+1.50
Corr.....			—0.88

521. 24 CEPHEI.

 $\alpha = 22 \ 7 \ 41.467. \quad \delta = 71 \ 47 \ 57.91.$ *Circle West.*

1888 July 28	E	—0.06	+0.4
Aug. 3	B	+ .14	+0.5
6	B	— .01	+0.6
8	E	— .11	+0.6
16	B	.00	+0.1
17	E	+ .04	+0.3
Mean.....		0.000	+0.42
Corr.....			+0.17

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>							
1889 Aug. 2	B	+0.03	+0.7	91 Sept. 16	F	+ .02	-1.8
4	E	+ .11	+0.4	17	F	+ .03	-1.5
5	B	+ .04	+1.7	19	F	+ .10	-1.4
15	E	- .07	+1.2	21 ¹	F	+ .14	-0.4
21	B	+ .16	+1.6	22	F	- .01	-1.1
22	E	+ .12	+1.4	Oct. 22	F	.00	-1.2
Mean.....		+0.065	+1.17	23	F	.00	-2.1
Corr.....			-1.14	Mean		+0.038	-1.22
				Corr.....			+0.27
				¹ Star faint; clouds.			
521. 24 CEPHEI, S. P.				<i>Circle East.</i>			
<i>Circle West.</i>							
1889 Mar. 21	B	+0.11	-0.6	1891 Sept. 23	F	+0.07	-0.1
22	E	+ .20	-0.3	25	F	+ .06	0.0
23	B	+ .27	+0.7	Oct. 9	F	+ .06	+0.7
29	E	+ .17	-2.1	10	F	- .03	+0.9
Apr. 4	B	+ .15	+1.0	12	F	+ .10	+0.4
Mean		+0.180	-0.26	15	F	+ .06	+1.4
Corr.....			+0.22	19	F	+ .01	+1.4
<i>Circle East.</i>				20	F	.00	+0.7
1890 Mar. 17	B	+0.12	+0.6	21	F	+ .04	+0.4
21	B	+ .11	+0.6	Mean		+0.041	+0.64
26	B	+ .07	+0.2	Corr.....			-0.30
31	B	- .09	+1.2	523. 31 PEGASI.			
Apr. 4	B	- .02	+1.0	$\alpha = 22 \ 16 \ 6.192. \quad \delta = 11 \ 39 \ 3.83.$			
10	B	+ .05	+0.5	<i>Circle West.</i>			
Mean		+0.040	+0.68				
Corr.....			-0.86	1888 Aug. 8	E	+0.01	-0.1
317. γ AQUARI.				17	E	- .01	+0.1
$\alpha = 22 \ 15 \ 58.465. \quad \delta = -1 \ 56 \ 29.31.$				20	B	+ .02	0.0
<i>Circle West.</i>				21	E	+ .04	-2.1
1887 Nov. 2	B	.....	-1.0	22	B	+ .05	0.0
88 July 28	E	+0.02	-0.5	24	B	+ .03	-1.2
				Mean		+0.023	-0.55
				Corr.....			+0.50

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				320. η AQUARI.			
1889 Aug. 24	B	+0.01	+1.2	$\alpha = 22 \ 29 \ 42.217. \ \delta = -0 \ 41 \ 3.75.$			
27	B	+ .03	+0.9	<i>Circle West.</i>			
29	E	+ .03	0.0	1887 Nov. 2	B	.....	-1.0
Sept. 20	B	+ .01	+0.9	88 July 28	E	+0.02	-0.7
21	B	+ .01	+1.7	Aug. 3	B	+ .04	-0.4
27	B	+ .05	+0.5	6	B	+ .05	0.0
Mean		+0.023	+0.87	8	E	+ .04	-0.7
Corr			-0.61	16	B	+ .03	-0.7
524. 3 LACERTAE.				17	E	- .01	.....
$\alpha = 22 \ 19 \ 14.051. \ \delta = 51 \ 40 \ 40.66.$				20	B	+ .04	+0.6
<i>Circle West.</i>				21	E	+ .04	-1.3
1888 Aug. 3	B	+0.07	+0.2	23	E	.00	-0.5
8	E	- .05	+0.1	24	B	- .04	-0.4
17	E	+ .05	+0.8	27	E	- .04	-0.5
20	B	+ .02	+1.1	29	B	- .03	-0.5
21	E	+ .02	-1.2	31	E	+ .05	+0.8
22	B	+ .01	+1.2	Sept. 1	B	.00	-0.6
Mean		+0.020	+0.37	91 Sept. 19	F	+ .06	+0.3
Corr			+0.17	Oct. 23 ¹	F	[+ .17]	-0.7
<i>Circle East.</i>				Mean.....		+0.017	-0.39
1889 Aug. 24	B	-0.03	+1.9	Corr			+0.26
27	E	- .04	+2.1	¹ Seeing very poor.			
29	B	+ .07	+0.8	<i>Circle East.</i>			
Sept. 20	E	- .10	+1.8	1889 Aug. 2	B	+0.01	+1.1
21	B	+ .01	+2.8	4	E	.00	-0.6
27	E	- .05	+1.8	5	B	+ .04	+0.3
Mean.....		-0.023	+1.87	15	E	+ .04	+1.2
Corr			-1.02	21	B	+ .02	+0.6
				22	E	+ .06	+1.2
				24	B	+ .01	+0.7
				29	E	.00	-0.8
				Sept. 20	B	+ .11	+0.3

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Sept. 27	B	+ .05	.....	525. 31 CEPHEI, S. P.			
91 Sept. 25	F	- .03	.....	<i>Circle West.</i>			
Oct. 10	F	+ .04	0.0	1889 Mar. 21	B	-0.05	-1.1
12	F	+ .13	+0.3	22	E	+ .06	+0.4
15	F	+ .07	+0.5	29	E	+ .07	-1.6
19	F	+ .05	-0.1	Apr. 4	B	.00	+0.5
21	F	+ .02	.....	5	E	- .17	-0.3
Mean		+0.039	+0.36	13	B	- .24	-1.9
Corr			-0.25	Mean.....		-0.055	-0.67

525. 31 CEPHEI.

 $\alpha = 22 \ 33 \ 3.183.$ $\delta = 73 \ 4 \ 20.15.$ *Circle West.*

1888 Aug. 3	B	-0.06	+0.5
6	B	- .29	-0.4
16	B	- .20	+0.1
17	E	- .26	+0.7
20	E	- .17	-0.6
23	E	- .14	+0.5
Mean		-0.187	+0.13
Corr			+0.10

Circle East.

1889 Aug. 2	B	-0.23	+1.3
4	E	- .18	+0.6
5	B	- .05	+1.4
15	E	- .30	+0.9
21	B	- .09	+2.0
22	E	- .06	+1.4
Mean		-0.152	+1.27
Corr			-1.08

Mean..... -0.055 -0.67

Corr +0.33

Circle East.

1890 Mar. 12	B	-0.10	+0.9
17	B	- .07	+0.7
31	B	- .33	+2.4
Apr. 4	B	- .11	+1.6
16	B	- .18	+1.6
17	B	- .17	+0.6
Mean		-0.160	+1.30
Corr			-1.13

526. 10 LACERTAE.

 $\alpha = 22 \ 34 \ 19.530.$ $\delta = 38 \ 28 \ 40.21.$ *Circle West.*

1888 Aug. 8	E	-0.02	-0.8
20	B	+ .01	+0.3
22	B	+ .02	+0.6
24	B	+ .03	-0.7
27	E	.00	-1.0
31	E	- .02	+0.6
Mean		+0.003	-0.17
Corr			+0.33

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				527. 30 CEPHEI, S. P.			
1889 Aug. 24	B	+0.05	+1.4	<i>Circle West.</i>			
27	B	— .09	+1.6	1889 Mar. 19	B	+0.13	+0.1
29	E	— .12	+0.2	23	B	+ .15	—0.6
Sept. 20	B	+ .01	.....	29	E	+ .23	—1.5
21	B	— .03	+1.9	Apr. 4	B	+ .12	+0.2
27	B	.00	+0.9	15	E	+ .07	—0.3
91 Oct. 19	F	— .04	+0.5	Mean		+0.140	—0.42
21	F	— .05	+0.7	Corr.			—0.23
Mean		—0.034	+1.03	<i>Circle East.</i>			
Corr.			—0.81	1890 Mar. 26	B	+0.13	+0.5
527. 30 CEPHEI.				Apr. 10	B	+ .01	+0.9
$\alpha = 22 \ 34 \ 44.887. \quad \delta = 63 \ 0 \ 45.28.$				17	B	+ .07	+0.3
<i>Circle West.</i>				20	B	+ .05	+0.1
1888 Aug. 17	E	+0.03	+1.7	Mean		+0.065	+0.45
21 ¹	E	+ .03	[—0.5]	Corr.			—0.84
22	B	+ .05	+1.4	321. ζ PEGASI.			
23	E	+ .07	+1.3	$\alpha = 22 \ 35 \ 58.552. \quad \delta = 10 \ 15 \ 25.76.$			
24	B	+ .10	+1.0	<i>Circle West.</i>			
29	B	— .05	+0.5	1888 Aug. 3	B	+0.03	—0.5
Mean		+0.038	+1.18	6	B	+ .07	—0.5
Corr.			—0.20	91 Sept. 17	F	+ .03	—1.2
¹ Tel. mic. diminished 0.4 rev.				19	F	+ .03	—0.4
<i>Circle East.</i>				21	F	+ .04	—0.6
1889 Aug. 2	B	+0.07	+1.8	22	F	— .01	—1.2
4	E	[— .36]	+1.1	Oct. 22	F	.00	—1.3
5	B	+ .07	+1.8	23	F	+ .02	—0.5
15	E	+ .06	+1.5	Mean		+0.026	—0.78
21	B	+ .08	+2.8	Corr.			+0.52
22	E	+ .15	+2.4				
Mean		+0.086	+1.90				
Corr.			—0.83				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				528. 13 LACERTAE.			
				$\alpha = 22 \ 39 \ 11.127. \ \delta = 41 \ 14 \ 30.96.$			
				<i>Circle West.</i>			
1891 Sept. 23	F	+0.03	+0.5	1888 Aug. 6	B	+0.04	+0.8
25	F	— .06	+0.9	8	E	— .05	—0.8
Oct. 9	F	+ .03	+1.4	17	E	+ .03	+0.7
10	F	+ .03	+0.8	20	B	+ .06	+0.6
12	F	— .03	+1.4	21	E	— .01	—0.8
15	F	+ .02	+1.2	23	E	+ .04	+0.1
Mean		+0.003	+1.03	Mean		+0.018	+0.10
Corr			—0.58	Corr			+0.24
322. η PEGASI.				<i>Circle East.</i>			
$\alpha = 22 \ 37 \ 50.759. \ \delta = 29 \ 38 \ 45.61.$				1889 Aug. 2	E	—0.01	+2.1
<i>Circle West.</i>				4	E	— .01	+1.1
1887 Nov. 2	B	.....	—1.4	5	B	+ .05	+2.0
88 Aug. 3	B	—0.01	—0.6	15	E	— .14	+1.6
8	E	— .06	—1.2	21	B	+ .07	+2.4
Sept. 1	B	+ .02	—0.5	22	E	.00	+2.5
6	B	— .05	+0.1	Mean.....		—0.007	+1.95
91 Sept. 19	F	— .02	.....	Corr... ..			—0.90
21	F	.00	—1.1	323. λ PEGASI.			
22	F	— .02	.....	$\alpha = 22 \ 41 \ 13.962. \ \delta = 22 \ 59 \ 12.84.$			
Oct. 23	F	— .01	—0.2	<i>Circle West.</i>			
Mean		—0.019	—0.70	1888 Aug. 6	B	0.00	—1.1
Corr			+0.26	16	B	.00	—0.8
<i>Circle East.</i>				17	E	— .01	—0.1
1891 Sept. 23	F	0.00	+0.6	20	B	+ .02	+0.4
25	F	— .14	—0.5	24	B	— .03	—0.8
Oct. 9	F	— .08	+0.6	29	B	— .03	—0.8
12	F	— .11	+0.6	31	E	.00	+0.2
19	F	— .02	.....	Sept. 1	B	+ .03	—0.8
20	F	— .02	+0.4	5	E	— .02	—1.2
21	F	— .06	0.0				
Mean		—0.061	+0.28				
Corr			—0.62				

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
91 Sept. 17	F	.00	.....	<i>Circle East.</i>			
22	F	.00	-1.0	1889 Aug. 4	E	+0.09	+0.8
Oct. 22	F	-.03	-1.5	5	B	-.04	+0.4
Mean		-0.006	-0.68	15	E	-.01	+0.5
Corr			+0.29	21	B	+.03	+1.5
<i>Circle East.</i>				22	E	-.02	+0.9
1889 Aug. 4	E	+0.06	+0.6	27	B	-.02	+0.7
15	E	-.02	+0.4	29	E	-.01	-1.3
21	B	+.01	+1.5	Mean		+0.003	+0.50
22	E	-.06	+1.4	Corr			-0.42
24	B	-.03	+1.0	<i>325. ι CEPHEI.</i>			
27	B	-.04	+0.8	$\alpha = 22 \ 45 \ 45.860. \quad \delta = 65 \ 37 \ 18.58.$			
29	E	-.07	-0.8	<i>Circle West.</i>			
Sept. 20	B	-.03	.....	1887 Nov. 2	B	.....	-0.5
27	B	-.01	.....	88 Aug. 3	B	-0.07	+0.9
91 Sept. 23	F	-.08	.....	6	B	-.04	+1.1
Mean		-0.027	+0.70	8	E	-.05	-0.2
Corr			-0.36	16	B	-.02	+1.0
<i>324. μ PEGASI.</i>				17	E	-.05	+1.4
$\alpha = 22 \ 44 \ 41.639. \quad \delta = 24 \ 1 \ 14.89.$				20	B	+.01	+1.1
<i>Circle West.</i>				24	B	+.01	+1.1
1888 Aug. 21	E	-0.01	-1.5	31	E	-.06	+2.1
23	E	-.01	-0.3	Sept. 1	B	+.06	+0.5
27	E	-.03	.....	Mean		-0.023	+0.85
29	B	-.07	-0.5	Corr			-0.08
31	E	-.04	+0.9	<i>Circle East.</i>			
Sept. 4	E	-.04	-0.5	1889 Aug. 24	B	+0.03	+1.7
5	E	-.02	-0.7	Sept. 20	B	-.06	+0.9
6	B	-.03	-0.1	27	B	.00	+1.3
Mean		-0.031	-0.39	91 Oct. 21	F	-.03	+1.5
Corr			+0.28	Mean		-0.015	+1.35
34				Corr			-1.01

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
326. λ AQUARI.				327. $\circ$ ANDROMEDAE.			
$\alpha = 22\ 46\ 52.518.$ $\delta = -8\ 9\ 53.67.$				$\alpha = 22\ 56\ 51.603.$ $\delta = 41\ 44\ 5.44.$			
Circle West.				Circle West.			
1888 Aug. 8	E	+0.08	-1.4	1887 Nov. 2	B	.....	-1.4
17	E	+ .05	+0.5	88 Aug. 8	E	+0.01	-0.1
27	E	+ .04	-0.7	16	B	+ .02	+0.2
29	B	+ .02	.....	20	B	+ .03	+0.7
Sept. 4	E	+ .08	+0.3	22	B	- .02	+0.7
5	E	+ .11	-1.1	24	B	- .01	+0.6
6	B	+ .09	+0.3	27	E	+ .06	+0.1
91 Sept. 22	F	.00	-0.3	29	B	- .01	-0.5
Oct. 22	F	- .04	-0.8	31	E	+ .05	+0.8
23	F	+ .09	-0.8	Sept. 4	E	- .04	+0.6
Mean.....		+0.052	+0.44	5	E	+ .02	+0.1
Corr.....			+0.26	Mean		+0.011	+0.16
Circle East.				Corr.....			+0.14
				Circle East.			
1889 Aug. 4	E	+0.03	+1.3	1889 Aug. 15	E	-0.05	+1.2
15	E	+ .07	+0.1	21	B	- .01	+1.3
21	B	+ .07	+1.5	22	E	+ .06	+2.0
22	E	+ .10	+1.8	24	B	- .02	+2.4
27	B	+ .04	+0.6	27	B	- .05	+1.4
29	E	+ .05	-0.7	29	E	- .01	+0.2
Sept. 21	B	+ .12	+0.2	Sept. 20	B	- .03	+1.2
91 Oct. 10	F	+ .01	+0.9	27	B	- .01	+0.3
12	F	+ .06	+0.7	91 Oct. 9	F	.00	+1.2
15	F	+ .10	+0.5	10	F	+ .03	+1.1
19	F	+ .03	+0.4	12	F	- .08	+1.6
20	F	+ .05	+0.4	15	F	- .09	+1.3
Mean.....		+0.061	+0.64	Mean		-0.022	+1.27
Corr.....			-0.17	Corr.....			-0.83

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
328. β PEGASI.				Aug. 22			
$\alpha = 22\ 58\ 26.493.$ $\delta = 27\ 29\ 9.93.$				24			
Circle West.				27			
1888 Aug. 8				31			
17				Sept. 4			
Sept. 1				5			
4				Mean			
5				Corr.			
6				Circle East.			
91 Oct. 22 ¹				1889 Aug. 4			
23				5			
Mean				15			
Corr.				21			
¹ Star faint; clouds.				22			
Circle East.				24			
1889 Aug. 2				27			
29				Sept. 20			
Sept. 21				Mean			
27				Corr.			
91 Oct. 12				529. π CEPHEI.			
19				$\alpha = 23\ 4\ 23.996.$ $\delta = 74\ 47\ 34.25.$			
20				Circle West.			
21				1888 Aug. 16			
Mean				17			
Corr.				21			
329. α PEGASI.				22			
$\alpha = 22\ 59\ 16.870.$ $\delta = 14\ 36\ 48.66.$				23			
Circle West.				24			
1888 Aug. 16				27			
17				Mean			
20				Corr.			
21				529. π CEPHEI.			

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				530. BR. 3077. $\alpha = 23 \ 7 \ 59.201. \ \delta = 56 \ 33 \ 39.50.$			
1889 Aug. 2	B	+0.03	+1.6	<i>Circle West.</i>			
4	E	+ .26	+1.7	1887 Nov. 1	B	.....	-0.2
15	E	- .17	+2.0	88 Aug. 16	B	+0.04	+1.2
21	B	+ .04	+2.0	17	E	+ .03	+1.3
22	E	+ .09	+1.9	21	E	- .06	-0.5
24	B	- .03	+2.2	22	B	+ .07	+1.4
Mean.....		+0.037	+1.90	23	E	+ .04	+1.3
Corr.....			-1.07	24	B	+ .10	+0.8
529. π CEPHEI, S. P.				Mean.....		+0.037	+0.76
<i>Circle West.</i>				Corr.....			+0.06
1889 Mar. 19	B	+0.05	-0.3	<i>Circle East.</i>			
22	E	+ .08	+0.6	1889 Aug. 2	B	+0.06	+2.0
23	B	+ .08	-0.9	4	E	+ .17	+1.0
29	E	+ .11	-1.0	15	E	- .09	+1.1
Apr. 4	B	+ .12	-0.5	21	B	+ .04	+1.6
5	E	- .26	-1.0	22	E	+ .03	+2.3
Mean.....		+0.030	-0.52	24	B	.00	+2.4
Corr.....			+0.12	Mean.....		+0.035	+1.73
<i>Circle East.</i>				Corr.....			-0.82
1890 Mar. 12	B	+0.06	+0.6	330. γ PISCUM.			
31	B	- .06	+1.5	$\alpha = 23 \ 11 \ 27.742. \ \delta = 2 \ 40 \ 52.59.$			
Apr. 4	B	- .11	+1.2	<i>Circle West.</i>			
10	B	- .01	+1.2	1888 Aug. 16	B	+0.07	-0.2
16 ¹	B	- .15	[+2.2]	17	E	.00	+0.7
17	B	+ .07	+0.6	21	E	+ .05	-1.2
Mean.....		-0.033	+1.02	22	B	+ .05	+0.6
Corr.....			-1.29	23	E	+ .04	-0.5
¹ Tel. mic. diminished 0.2 rev.				24	B	+ .07	-1.0
				27	E	+ .04	+0.2

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Aug. 29	B	+ .05	-0.8	Aug. 29	E	- .01	+0.5
31	E	+ .03	+1.9	Sept. 21	B	- .03	+1.1
Sept. 4	E	+ .04	+0.4	27	B	+ .08	-0.2
Mean		+0.044	+0.01	91 Oct. 10	F	- .01	+0.8
Corr			+0.15	15	F	- .05	+0.8
<i>Circle East.</i>				19	F	+ .01	+1.3
1889 Aug. 5	B	-0.01	-0.1	Mean		-0.005	+0.95
15	E	+ .14	+1.0	Corr			-0.37
21	B	+ .18	-0.4	532. ν PEGASI			
22	E	+ .03	+1.1	$\alpha = 23 \ 19 \ 53.300. \quad \delta = 22 \ 47 \ 54.67.$			
24	B	+ .09	+0.9	<i>Circle West.</i>			
27	B	+ .02	+0.5	1888 Aug. 16	B	+0.05	-0.3
29	E	+ .05	-0.5	17	E	+ .03	+0.2
Mean		+0.071	+0.36	22	B	+ .10	+0.6
Corr			-0.20	23	E	+ .06	+0.2
531. τ PEGASI.				29	B	+ .10	-1.0
$\alpha = 23 \ 15 \ 11.537. \quad \delta = 23 \ 8 \ 17.39.$				Sept. 1	E	.....	-0.1
<i>Circle West.</i>				4	E	+ .01	-0.1
1887 Nov. 3	B	.....	-1.3	Mean		+0.058	-0.07
88 Aug. 17	E	+0.03	+0.9	Corr			+0.31
20	B	+ .05	+0.6	<i>Circle East.</i>			
21	E	+ .01	-0.7	1889 Aug. 2	B	+0.05	+0.8
23	E	- .04	+0.5	4	E	+ .15	+0.6
24	B	+ .04	-0.8	5	B	+ .18	+0.5
Sept. 4	E	- .01	+0.6	15	E	+ .05	+0.6
91 Oct. 23	F	- .02	-0.9	21	B	+ .14	+0.8
Mean		+0.009	-0.14	22	E	+ .07	+1.2
Corr			+0.29	Mean		+0.107	+0.75
<i>Circle East.</i>				Corr			-0.36
1889 Aug. 24	B	-0.06	+2.3				
27	B	+ .03	+1.0				

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
533. 4 CASSIOPEAE.				<i>Circle East.</i>			
$\alpha = 23 \ 19 \ 57.141. \quad \delta = 61 \ 40 \ 43.70.$							
<i>Circle West.</i>							
1887 Nov. 3	B	.....	0.0	1890 Mar. 31	B	-0.06	+0.6
88 Aug. 20	B	-0.01	+1.0	Apr. 4	B	- .05	+1.1
21	E	.00	+0.2	16	B	- .04	+1.6
24	B	+ .03	+0.4	17	B	- .03	+1.0
27	E	+ .04	+0.7	19	B	- .06	+0.7
31	E	.00	+1.8	20	B	- .06	+0.3
Sept. 1	B	- .02	+1.4	Mean		-0.050	+0.88
Mean		+0.007	+0.79	Corr			-1.01
Corr			-0.12	534. κ PISCUM.			
<i>Circle East.</i>				$\alpha = 23 \ 21 \ 17.581. \quad \delta = 0 \ 39 \ 12.19.$			
1889 Aug. 24	B	-0.05	+2.6	<i>Circle West.</i>			
27	B	- .07	+2.4	1888 Aug. 22	B	+0.08	+0.3
29	E	+ .14	+0.5	23	E	+ .09	-0.3
Sept. 20	B	- .03	+2.6	24	B	+ .01	-0.7
21	B	- .03	+2.2	29	B	+ .05	-1.4
27	B	+ .04	+1.2	Sept. 4	E	+ .03	+0.1
Mean		0.000	+1.92	5	E	+ .06	-0.8
Corr			-0.83	91 Oct. 23	F	.00	-0.8
533. 4 CASSIOPEAE, S. P.				Mean		+0.046	-0.51
<i>Circle West.</i>				Corr			+0.26
1889 Mar. 21	B	+0.04	-2.1	<i>Circle East.</i>			
22	E	+ .02	+0.5	1889 Aug. 4	E	+0.07	+0.3
23	B	+ .12	+0.1	5	B	+ .05	+0.2
29	E	+ .03	-0.8	21	B	+ .04	+0.5
Apr. 5	E	- .02	-1.2	22	E	+ .03	+0.4
13	B	- .05	-2.0	24	B	+ .08	+1.0
Mean		+0.023	-0.92	29 ¹	E	- .02	[0.0]
Corr			-0.20	91 Oct. 10	F	+ .06	+0.7
				12	F	+ .04	+0.3
				15	F	+ .06	.....

¹ Tel. mic. diminished 0.1 rev.

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Oct. 19	F	+ .05	+0.2	536. 72 PEGASI.			
20	F	+ .03	-0.2	$\alpha = 23 \ 28 \ 29.725. \ \delta = 30 \ 43 \ 5.29.$			
21	F	+ .03	0.0	<i>Circle West.</i>			
Mean.....		+0.043	+0.34	1888 Aug. 16	B	+0.07	+0.4
Corr.....			-0.20	17	E	+ .03	+0.8
535. 70 PEGASI.				20	B	+ .09	0.0
$\alpha = 23 \ 23 \ 35.459. \ \delta = 12 \ 9 \ 12.87.$				21	E	.00	-0.7
<i>Circle West.</i>				22	B	+ .05	+0.5
1888 Aug. 21	E	+0.04	-0.2	23	E	+ .08	+0.2
23	E	+ .01	-0.5	Mean		+0.053	+0.20
24	B	+ .06	-0.8	Corr			+0.19
29	B	+ .05	-0.6	<i>Circle East.</i>			
Sept. 1	B	+ .01	-0.6	1889 Aug. 2	B	+0.04	+1.1
4	E	+ .05	+0.4	4	E	- .04	+0.3
91 Oct. 23	F	+ .02	-0.7	5	B	+ .08	+1.4
Mean		+0.034	-0.43	15	E	- .02	+0.4
Corr			+0.49	22	E	+ .01	+0.8
<i>Circle East.</i>				24	B	- .01	+1.8
1889 Aug. 2	B	+0.04	+1.8	Mean		+0.010	+0.97
4	E	+ .06	+0.8	Corr			-0.58
15	E	+ .03	+1.3	331. λ ANDROMEDAE.			
21	B	+ .04	+1.8	$\alpha = 23 \ 32 \ 10.886. \ \delta = 45 \ 51 \ 43.55.$			
22	E	+ .04	+1.4	<i>Circle West.</i>			
27	B	+ .06	+1.4	1888 Aug. 16	B	-0.03	+1.0
91 Oct. 15	F	+ .02	+1.2	17	E	- .01	+0.7
19	F	+ .03	+1.5	20	B	- .03	+0.5
20	F	+ .03	+0.8	24	B	- .04	+0.4
21	F	+ .07	+1.4	27	E	- .01	-0.4
Mean		+0.042	+1.34	Sépt. 5	E	- .02	.....
Corr			-0.63	8	E	+ .01	+1.0
				Mean.....		-0.019	+0.53
				Corr			+0.41

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
<i>Circle East.</i>				334. γ CEPHEI.			
1889 Aug. 2	E	-0.01	+2.4	$\alpha = 23 \ 34 \ 50.173. \quad \delta = 77 \ 1 \ 5.82.$			
21	B	- .10	+1.0	<i>Circle West.</i>			
24	B	- .10	+1.9	1888 Aug. 16	B	-0.19	+1.6
29	E	- .07	+0.7	17	E	- .26	+1.1
Sept. 21	B	- .07	+2.1	20	B	+ .07	+1.2
Mean.....		-0.070	+1.62	21	E	- .25	+0.8
Corr.....			-0.69	22	B	- .06	+1.9
332. ι ANDROMEDAE.				23	E	- .06	+1.2
$\alpha = 23 \ 32 \ 44.513. \quad \delta = 42 \ 39 \ 32.35.$				24	B	+ .18	+1.4
<i>Circle West.</i>				27	E	- .06	0.0
1887 Nov. 3	B	.....	-0.7	29	B	+ .29	0.0
88 Aug. 31	E	0.00	+1.1	31	E	+ .04	+1.2
Sept. 1	B	+ .01	+0.5	Sept. 1	B	+ .01	+0.4
4	E	- .09	+1.1	4	E	.00	+1.2
91 Oct. 23	F	+ .01	+0.1	5	E	- .07	+0.3
Mean.....		-0.018	+0.42	6	B	- .12	+1.0
Corr.....			-0.10	8	E	- .01	+1.9
<i>Circle East.</i>				Mean		-0.033	+1.01
1889 Aug. 4	E	+0.12	+0.8	Corr			-0.09
15	E	- .11	+1.3	<i>Circle East.</i>			
22	E	- .02	+1.8	1889 Aug. 2	B	+0.07	+2.4
27	B	- .05	+1.6	4	E	+ .29	+0.7
Sept. 27	B	.00	+0.5	5	B	- .04	+2.4
91 Oct. 10	F	+ .05	+0.8	15	E	- .27	+2.3
12	F	- .11	+2.1	21	B	+ .07	+2.0
15	F	- .10	+1.3	22	E	+ .16	+2.8
19	F	- .04	+1.0	24	B	- .16	+3.0
21	F	- .04	+1.3	27	B	- .08	+3.0
Mean.....		-0.030	+1.25	29	E	+ .43	+1.9
Corr			-0.52	Sept. 20	B	+ .01	+2.2

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
Sept. 21	B	+ .05	+2.9	Apr. 4	B	+ .03	0.0
27	B	+ .08	+2.2	10	B	+ .01	0.0
Mean		+0.051	+2.32	16	B	- .13	.....
Corr			-1.16	17	B	- .22	+0.9
				20	B	+ .08	+0.5

334. γ CEPHEI, S. P.*Circle West.*

1888 Apr. 24	E	-0.16	-0.2
89 Mar. 19	B	+ .11	-0.1
21	B	+ .20	-0.9
22	E	+ .14	+0.4
23	B	+ .39	-0.4
29	E	- .03	-1.8
Apr. 4	B	+ .18	-0.2
5	E	- .13	-1.1
13 ¹	B	- .02	[-3.4]
15	E	+ .12	-0.6
19	B	+ .20	-1.7
21	E	+ .27	0.0
25	B	- .01	.....
Mean		+0.097	-0.6)
Corr			-0.65

¹ Nadir determination inferior.*Circle East.*

1889 Apr. 30	E	+0.18	0.0
May 3	B	+ .06	+0.5
6	E	+ .06	+0.1
90 Mar. 12	B	+ .10	+0.2
17	B	+ .09	0.0
28	B	+ .01	-0.3
31	B	- .10	+0.4

35

Mean		+0.014	+0.21
Corr			-1.13

335. κ ANDROMEDAE. $\alpha = 23 \ 34 \ 59.447. \quad \delta = 43 \ 43 \ 29.44.$ *Circle West.*

1891 Oct. 23	F	-0.10	-0.4
Corr			+0.08

Circle East.

1891 Oct. 9	F	-0.04	+1.4
10	F	- .01	.....
12	F	- .17	+1.7
15	F	- .06	+0.7
19	F	- .12	+0.4
20	F	- .03	+0.5
Mean		-0.072	+0.94
Corr			-0.50

621. ω^2 AQUARI. $\alpha = 23 \ 37 \ 1.065. \quad \delta = -15 \ 9 \ 11.44.$ *Circle West.*

1887 Nov. 3	B	.....	-0.8
Corr			+0.54

Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"	Date.	Obs'r.	$\Delta R. A.$ _s	$\Delta Dec.$ _"
537. 41 H. CEPHEI.				Circle East.			
$\alpha = 23 \ 42 \ 39.065. \ \delta = 67 \ 11 \ 44.25.$							
Circle West.							
1888 Aug. 22	B	+0.15	+0.6	1890 Mar. 12	B	+0.15	+0.4
23	E	.00	+0.7	17	B	+ .10	+0.8
29	B	- .05	+0.4	28	B	+ .09	+0.5
Sept. 1	B	+ .14	+0.7	31	B	+ .11	+0.3
4	E	+ .10	+1.7	Apr. 4	B	+ .10	+0.4
5	E	+ .09	+0.6	16	B	+ .05	+1.3
Mean.....		+0.072	+0.78	Mean.....		+0.100	+0.62
Corr.....			-0.13	Corr.....			-0.80
Circle East.							
1889 Aug. 2	B	+0.11	+2.3	622. LAC. δ SCULPTORIS.			
4	E	+ .32	+0.3	$\alpha = 23 \ 43 \ 11.679. \ \delta = -28 \ 44 \ 19.12.$			
5	B	+ .08	+1.6	Circle West.			
15	E	+ .04	+0.9	1887 Nov. 3	B	.....	-0.1
21	B	+ .19	+0.9	Corr.....		.....	+0.31
22	E	+ .10	+1.7				
Mean.....		+0.140	+1.28	538. ϕ PEGASI.			
Corr.....			-1.14	$\alpha = 23 \ 46 \ 53.482. \ \delta = 18 \ 30 \ 33.32.$			
537. 41 H. CEPHEI, S. P.				Circle West.			
Circle West.				1887 Nov. 1	B	.....	-0.8
1889 Mar. 22	E	+0.26	+0.6	2	B	.....	-1.2
23	B	+ .39	+0.4	3	B	.....	-0.4
29	E	+ .11	-1.2	88 Aug. 22	B	+0.06	+0.1
Apr. 5	E	+ .13	-1.6	23	E	+ .06	+0.6
13	B	+ .14	-2.6	29	B	+ .05	-0.7
19	B	+ .20	+0.3	Sept. 1	B	+ .02	+0.1
Mean.....		+0.205	-0.68	4	E	+ .01	+0.9
Corr.....			-0.23	5	E	- .01	+0.4
				91 Oct. 23	F	+ .03	-1.1
				Mean.....		+0.031	-0.21
				Corr.....			+0.70

Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "	Date.	Obs'r.	$\Delta R. A.$ s	$\Delta Dec.$ "
<i>Circle East.</i>				Sept. 27	B	+ .05	+1.7
1889 Aug. 2	B	+0.06	+1.2	Mean		+0.020	+1.66
4	E	+ .07	+0.4	Corr			-0.86
5	B	+ .07	+0.9	336. ω PISCUM.			
22	E	+ .01	+1.1	$\alpha = 23 \ 53 \ 39.736. \quad \delta = 6 \ 15 \ 15.52.$			
24	B	.00	+1.2	<i>Circle West.</i>			
29	E	- .01	+0.1	1887 Nov. 2	B	.....	-1.6
91 Oct. 9	F	+ .04	+0.7	88 Aug. 21	E	-0.05	-0.4
10	F	- .02	+1.2	22	B	+ .05	-1.1
12	F	.00	+0.8	23	E	+ .04	-1.2
15	F	- .05	+0.7	24	B	+ .02	-1.5
19	F	+ .04	+0.1	29	B	+ .05	-1.2
20	F	+ .04	+0.1	Sept. 1	B	- .05	-1.3
Mean		+0.021	+0.71	4	E	+ .03	+0.4
Corr			-0.40	5	E	+ .01	-0.8
539. ρ CASSIOPEAE.				6	B	+ .08	-1.5
$\alpha = 23 \ 48 \ 53.312. \quad \delta = 56 \ 53 \ 13.92.$				8	E	+ .01	-0.8
<i>Circle West.</i>				Mean		+0.019	-1.00
1888 Aug. 22	B	-0.01	+1.1	Corr			+0.39
23	E	+ .05	+1.2	<i>Circle East.</i>			
29	B	.00	+0.6	1889 Aug. 2	B	+0.02	0.0
Sept. 1	B	+ .03	+1.2	4	E	+ .04	-1.2
4	E	+ .05	+1.8	5	B	+ .02	+0.4
5	E	.00	+1.4	15	E	+ .09	-0.8
Mean		+0.020	+1.22	21	B	+ .08	-0.8
Corr			+0.08	22	E	+ .03	-0.3
<i>Circle East.</i>				24	B	+ .03	+0.8
1889 Aug. 24	E	-0.03	+1.7	27	B	+ .03	+0.3
27	B	+ .01	+2.1	29	B	.00	0.0
29	E	+ .06	+1.1	Sept. 20	B	+ .09	+0.2
Sept. 20	B	+ .01	+1.7	21	B	+ .05	.....
21	B	+ .02	.....	27	B	+ .06	-0.6
				Mean.....		+0.045	-0.18
				Corr...			-0.35

RESULTING CORRECTIONS

TO THE

STAR PLACES of the BERLINER JAHRBUCH.

CORRECTIONS TO THE R. A. OF ALL STARS EMPLOYED FOR THE DETERMINATION OF AZIMUTH ARE ENCLOSED IN BRACKETS.

RESULTING CORRECTIONS TO THE STAR PLACES OF THE BERLINER JAHRBUCH.

No.	Star.	R. A.		Dec.	RIGHT ASCENSION.			DECLINATION.		
					1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i>	<i>m.</i>	<i>°</i>		<i>s.</i>			<i>"</i>	
1	α Andromedae	0	2	+23 29	9.26	-0.015	16	9.20	-0.37	17
2	β Cassiopeae	0	3	+58 32	10.02	- .022	13	9.86	+0.73	12
337	22 Andromedae	0	4	+45 27	9.15	- .038	12	9.15	+1.02	12
3	γ Pegasi	0	7	+14 34	9.80	+ .015	8	9.76	-0.07	7
338	Br. 6	0	9	+76 20	9.14	+ .494	12	9.14	+0.82	12
338	Br. 6, S. P.	0	9	+76 20	9.52	+ .525	12	9.52	+0.78	12
4	ι Ceti	0	13	- 9 26	9.64	+ .043	30	9.47	+0.24	33
339	12 Ceti	0	24	- 4 33	....	.....	..	7.85	-0.44	2
6	ζ Cassiopeae	0	30	+53 17	9.12	- .042	13	9.12	+0.45	13
7	π Andromedae	0	31	+33 6	9.49	.000	9	9.49	-0.46	9
8	ε Andromedae	0	32	+28 42	9.37	+ .001	6	9.37	-0.03	6
9	δ Andromedae	0	33	+30 15	9.18	- .052	13	9.08	-0.47	15
10	α Cassiopeae	0	34	+55 56	9.87	- .029	9	9.61	+0.37	9
540	β Ceti	0	38	-18 35	....	.....	..	7.86	+0.10	1
340	21 Cassiopeae	0	38	+74 23	9.19	+ .019	12	9.19	+0.10	12
340	21 Cass., S. P.	0	38	+74 23	9.33	+ .061	12	9.28	+0.59	13
341	ϕ Cassiopeae	0	38	+47 40	9.06	+ .036	12	9.06	+0.38	12
11	ζ Andromedae	0	41	+23 40	9.54	+ .023	9	9.42	-0.75	10
12	η Cassiopeae	0	42	+57 13	9.78	+ .345	2	9.78	-0.77	2
342	δ Piscium	0	42	+ 6 59	8.64	+ .037	12	8.64	-0.06	12
343	Br. 82	0	44	+63 38	9.18	+ .115	12	9.18	+0.58	12
343	Br. 82, S. P.	0	44	+63 38	9.08	+ .142	12	9.08	+0.30	12
13	γ Cassiopeae	0	50	+60 7	9.68	- .032	11	9.22	+0.34	13
14	μ Andromedae	0	50	+37 54	9.23	- .090	9	9.23	-0.45	
344	43 H. Cephei	0	53	+85 40	9.20	[+ .034]	15	9.08	-0.11	17

No.	Star.	R. A.	Dec.	RIGHT ASCENSION.			DECLINATION.		
				1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i> <i>m.</i>	<i>°</i> <i>'</i>		<i>s.</i>			<i>"</i>	
344	43 H. Ceph., S. P.	0 53	+85 40	9.46	[+0.022]	17	9.37	-0.32	16
15	ε Piscium	0 57	+ 7 17	9.51	+ .022	24	9.47	-0.60	18
345	44 H. Cephei	1 2	+79 5	9.14	+ .206	12	9.14	+0.74	12
345	44 H. Ceph., S. P.	1 2	+79 5	9.08	- .055	12	9.08	+0.66	12
16	β Andromedae	1 3	+35 2	9.57	- .053	17	9.24	-0.96	17
17	τ Piscium	1 5	+29 30	9.21	- .020	10	9.21	-0.96	10
18	ν Piscium	1 13	+26 41	9.85	+ .012	26	9.61	-0.38	3)
19	α Ursae Minoris	1 18	+88 43	9.75	[+ .041]	59	9.48	-0.14	63
19	α Urs. Min., S. P.	1 18	+88 43	9.27	[- .056]	44	9.20	+0.19	38
346	ψ Cassiopeae	1 18	+67 33	9.04	- .039	12	9.04	+0.64	12
346	ψ Cass., S. P.	1 18	+67 33	9.04	+ .005	12	9.07	+0.87	12
21	δ Ceti	1 18	- 8 45	9.94	+ .018	13	9.67	-0.36	13
20	δ Cassiopeae	1 18	+59 39	9.38	- .048	9	9.38	-0.68	9
22	η Piscium	1 25	+14 46	10.47	+ .009	19	10.39	-0.20	20
347	40 Cassiopeae	1 29	+72 28	9 24	+ .095	12	9.18	+0.26	13
347	40 Cass , S. P.	1 29	+72 28	9.20	+ .048	12	9.20	-0.30	12
23	ν Persei	1 31	+48 4	10.71	- .008	14	10.35	-0.36	17
348	43 Cassiopeae	1 34	+67 29	9.26	+ .074	12	9.20	+0.18	13
348	43 Cass., S. P.	1 34	+67 29	9.04	+ .035	12	9.07	+0.30	11
349	ν Piscium	1 35	+ 4 55	9.18	+ .050	12	9.18	-0.47	12
24	ϕ Persei	1 36	+50 8	10.61	+ .018	13	10.3)	+0.48	15
542	τ Ceti	1 38	-16 31	12.00	+ .028	11	11.66	+0.24	13
25	σ Piscium	1 39	+ 8 36	9.04	+ .033	25	8.87	-0.30	24
26	ε Cassiopeae	1 46	+63 7	9.55	- .022	9	9.55	+0.05	9
26	ε Cass., S. P.	1 46	+63 7	8.40	- .020	1	8.40	+0.22	1
27	α Trianguli	1 46	+29 2	9.32	- .026	13	9.21	-0.48	9
29	ξ Piscium	1 47	+ 2 38	10.52	+ .020	3	9.77	+0.16	4
3)	β Arietis	1 48	+20 16	10.76	+ .005	18	10.78	-0.45	16
31	50 Cassiopeae	1 54	+71 53	8.73	+ .002	15	8.72	+0.08	14
31	50 Cass., S. P.	1 54	+71 53	8.82	- .100	2	8.82	+0.61	2

No.	Star.	R. A.	Dec.	RIGHT ASCENSION.			DECLINATION.		
				1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i> <i>m</i>	<i>°</i> <i>'</i>		<i>s</i>			<i>"</i>	
545	ν Ceti	1 54	-21 36	....	.....	..	7.86	+1.47	1
32	γ Andromedae	1 57	+41 48	9.14	-0.005	12	9.14	-0.06	12
33	α Arietis	2 0	+22 56	9.15	- .008	13	9.16	-0.42	14
34	β Trianguli	2 2	+34 27	10.74	- .059	12	10.38	-0.19	14
350	55 Cassiopeae	2 5	+66 0	9.14	- .026	13	9.14	+0.60	13
350	55 Cass., S. P.	2 5	+66 0	9.06	- .040	12	9.06	+0.42	12
351	6 Persei	2 6	+50 33	9.20	+ .050	11	9.20	+0.19	11
546	Lac. μ Fornacis	2 8	-31 14	11.99	+ .100	10	11.98	+1.40	11
352	γ Trianguli	2 10	+33 20	8.96	- .020	13	8.94	-0.20	12
353	67 Ceti	2 11	- 6 55	....	.....	..	7.99	-0.64	1
354	ϑ Arietis	2 12	+19 23	9.16	+ .010	13	9.12	-0.30	14
35	σ Ceti	2 13	- 3 28	10.88	+ .046	12	10.98	+0.64	13
36	ι Cassiopeae	2 20	+66 54	8.90	- .032	6	8.87	+0.55	7
36	ι Cass., S. P.	2 20	+66 54	8.40	+ .045	2	8.40	+0.70	2
37	ξ^2 Ceti	2 22	+ 7 57	9.76	+ .013	12	9.46	-0.42	15
38	36 H. Cassiopeae	2 27	+72 20	9.02	- .126	4	8.71	+0.33	6
38	36 H. Cass., S. P.	2 27	+72 20	8.42	- .200	2	8.42	+0.47	2
355	ν Arietis	2 32	+21 29	9.07	+ .013	13	9.06	-0.67	15
39	δ Ceti	2 33	- 0 3	10.33	- .029	5	9.70	+0.48	8
356	Br. 366	2 35	+67 21	9.08	+ .004	13	9.04	+0.10	14
356	Br. 366, S. P.	2 35	+67 21	8.43	- .004	11	8.43	+0.48	12
40	ϑ Persei	2 36	+48 45	9.30	+ .015	2	9.30	+0.86	2
357	35 Arietis	2 36	+27 14	9.14	+ .009	12	9.10	-0.28	13
547	π Ceti	2 38	-14 19	....	.....	..	7.95	-0.49	1
42	μ Ceti	2 38	+ 9 33	11.30	+ .042	8	10.90	-0.48	8
43	η Persei	2 42	+55 26	9.16	- .072	5	9.18	+1.06	6
44	41 Arietis	2 43	+26 43	10.58	+ .017	13	10.15	-0.14	13
548	τ^2 Eridani	2 46	-21 27	8.00	+ .010	1	8.00	+0.72	1
45	τ Persei	2 46	+52 18	10.74	- .010	14	10.44	+0.18	14
46	η Eridani	2 51	- 9 20	11.54	+ .043	13	11.50	+0.06	12

No.	Star.	R. A.	Dec.	RIGHT ASCENSION.			DECLINATION.		
				1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h. m.</i>	<i>° ' "</i>		<i>s.</i>			<i>"</i>	
358	47 H. Cephei	2 51	+78 58	9.02	-0.112	13	8.94	-0.77	15
358	47 H. Ceph., S. P.	2 51	+78 58	9.07	- .110	10	9.07	+0.25	10
47	α Ceti	2 56	+ 3 39	11.00	+ .036	12	11.00	-0.34	12
48	γ Persei	2 56	+53 4	9.80	- .035	2	9.80	+0.77	2
49	ρ Persei	2 58	+38 24	10.18	- .042	8	10.18	-0.27	8
50	β Persei	3 1	+40 31	9.10	+ .006	10	8.98	-0.18	12
51	ι Persei	3 1	+49 11	9.80	+ .040	1	9.80	-1.06	1
359	δ Arietis	3 5	+19 18	9.06	- .002	12	9.06	-0.30	12
360	48 H. Cephei	3 6	+77 19	9.10	+ .200	12	9.06	+0.05	12
360	48 H. Ceph., S. P.	3 6	+77 19	8.88	+ .170	12	8.88	+0.14	12
549	12 Eridani	3 7	-29 25	12.00	- .001	10	12.00	-0.16	10
52	α Persei	3 16	+49 28	10.18	- .052	15	10.00	+0.46	14
53	σ Tauri	3 18	+ 8 38	10.12	- .013	11	9.70	-0.56	11
361	2 H. Camelopardi	3 20	+59 33	9.08	- .006	12	9.08	-0.36	12
361	2 H. Cam., S. P.	3 20	+59 33	9.04	+ .044	10	9.04	+0.06	10
362	σ Persei	3 22	+47 36	9.06	+ .004	12	9.06	-0.14	12
55	f Tauri	3 24	+12 33	10.61	+ .006	15	10.56	-0.06	15
56	ε Eridani	3 27	- 9 49	9.76	+ .039	19	9.75	+0.52	17
363	Gr. 716	3 32	+62 51	9.06	- .031	12	9.06	-0.74	12
363	Gr. 716, S. P.	3 32	+62 51	9.00	- .010	12	9.00	-0.24	12
57	δ Persei	3 35	+47 26	9.21	- .015	12	9.21	-0.04	12
59	ν Persei	3 37	+42 13	11.39	- .049	13	11.39	+0.68	10
550	δ Eridani	3 37	-10 8	....	.....	..	7.95	+0.41	1
60	17 Tauri	3 38	+23 46	8.70	+ .040	1	8.70	-1.72	1
364	5 H. Camelopardi	3 38	+70 59	9.08	+ .122	12	9.08	+0.10	12
364	5 H. Cam., S. P.	3 38	+70 59	8.90	+ .121	12	8.90	+0.61	12
61	η Tauri	3 40	+23 45	9.59	.000	8	9.81	-0.13	7
62	27 Tauri	3 42	+23 42	8.88	- .020	5	8.84	+0.26	4
63	ζ Persei	3 47	+31 33	9.90	- .032	10	9.63	-0.80	9
365	9 H. Camelopardi	3 47	+60 47	9.08	+ .017	12	9.08	-0.54	12

No.	Star.	R. A.	Dec.	RIGHT ASCENSION.			DECLINATION.		
				1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i> <i>m.</i>	<i>°</i> <i>'</i>		<i>s.</i>			<i>"</i>	
365	9 H. Cam., S. P.	3 47	+60 47	8.93	+0.014	12	8.94	-0.36	10
64	ϵ Persei	3 50	+39 41	9 18	+ .021	10	9.18	-0.36	10
65	ξ Persei	3 51	+35 28	10.11	- .003	12	10.11	-0.34	12
552	γ Eridani	3 52	-13 49	8.00	- .120	1	8.00	+1.78	1
66	λ Tauri	3 54	+12 10	9.71	- .012	21	9.69	-0.20	18
67	ν Tauri	3 57	+ 5 41	9.33	- .017	18	9.13	-0.04	14
69	c Persei	4 0	+47 25	11.13	+ .010	12	11.04	+0.23	13
68	Gr. 750	4 2	+85 15	9.70	[+ .114]	54	9.37	+0.37	44
68	Gr. 750, S. P.	4 2	+85 15	8.99	[+ .032]	35	8.96	+0.62	34
367	54 Persei	4 13	+34 18	9.18	- .004	12	9.18	-0.08	12
70	γ Tauri	4 13	+15 21	9.40	- .011	10	9.40	-0.05	10
71	δ Tauri	4 16	+17 17	10.32	- .001	28	10.38	-0.33	24
72	ϵ Tauri	4 22	+18 56	11.05	- .003	18	10.97	-0.22	17
368	1 Camelop. <i>seq.</i>	4 23	+53 40	9.17	- .042	13	9.17	-0.25	13
73	α Tauri	4 29	+16 17	9.29	- .002	12	9.28	-0.68	11
74	ν Eridani	4 30	- 3 34	10.32	+ .042	24	10.32	-0.64	24
369	Gr. 848	4 34	+75 44	9.23	- .066	13	9.23	-0.29	13
369	Gr. 848, S. P.	4 34	+75 44	9.03	- .046	10	9.01	-0.30	12
370	τ Tauri	4 35	+22 44	9.22	+ .012	12	9.18	-0.42	11
371	4 Camelopardi	4 38	+56 33	9.17	+ .058	14	9.17	+0.24	14
75	μ Eridani	4 40	- 3 27	9.58	+ .042	7	9.67	-0.22	6
76	9 Camelopardi	4 43	+66 9	9.28	- .002	15	9.28	+0.02	15
76	9 Cam., S. P.	4 43	+66 9	9.26	- .038	5	9.26	+0.54	5
77	π^4 Orionis	4 45	+ 5 24	9.15	+ .018	9	9.15	-0.31	9
....	5 Orionis *	4 47	+ 2 19	11.97	.....	5	11.96	.....	4
78	π^5 Orionis	4 48	+ 2 15	9.88	- .010	11	9.88	-0.16	11
79	ι Aurigae	4 49	+32 59	9.25	- .042	15	9.24	-0.76	14
80	10 Camelopardi	4 53	+60 16	10.74	- .092	15	10.74	+0.18	15
80	10 Cam., S. P.	4 53	+60 16	9.26	- .145	5	9.26	+0.08	5
81	ϵ Aurigae	4 54	+43 39	9.14	- .019	10	9.17	0.00	11

 * Observed mean place 1890.0; $4h\ 47m\ 33s.565$, $+2^\circ\ 19'\ 32''.93$. Proper motion adopted from Auwers' Bradley; $0s\ 0000$, $-0''.014$.

No.	Star.	R. A.	Dec.	RIGHT ASCENSION.			DECLINATION.		
				1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i> <i>m.</i>	<i>°</i> <i>'</i>		<i>s.</i>			<i>"</i>	
82	ζ Aurigae	4 54	+40 54	9.69	-0.029	5	9.69	-0.40	5
372	ι Tauri	4 56	+21 55	9.22	+ .010	12	9.22	-0.29	12
84	β Eridani	5 2	- 5 13	10.53	+ .010	21	10.58	-0.46	21
373	19 H. Camelop.	5 4	+79 6	9.32	+ .174	12	9.32	+0.14	12
373	19 H. Cam., S. P.	5 4	+79 6	9.96	+ .136	11	8.96	-0.05	12
374	μ Aurigae	5 5	+38 21	9.30	+ .029	12	9.28	-0.06	11
86	α Aurigae	5 8	+45 53	9.94	- .055	9	9.93	+0.18	10
87	β Orionis	5 9	- 8 19	10.64	+ .015	15	10.98	-0.17	15
88	τ Orionis	5 12	- 6 57	9.16	+ .048	7	9.25	-0.38	6
91	γ Orionis	5 19	+ 6 14	9.00	+ .030	4	9.92	-0.20	2
90	β Tauri	5 19	+28 30	9.84	- .012	9	9.98	-0.39	8
375	17 Camelopardi	5 19	+62 58	9.32	- .007	13	9.32	+0.22	13
375	17 Cam., S. P.	5 19	+62 58	9.00	- .042	13	9.00	-0.24	13
92	Gr. 966	5 25	+74 58	9.54	- .038	11	9.53	+1.08	10
92	Gr. 966, S. P.	5 25	+74 58	9.02	- .242	4	9.02	+0.84	4
93	δ Orionis	5 26	- 0 22	9.60	+ .025	8	9.74	-0.24	7
566	α Leporis	5 27	-17 54	8.01	+ .170	1	....	.....	..
376	φ^1 Orionis	5 28	+ 9 24	9.27	- .016	13	9.27	-0.02	13
96	ι Orionis	5 30	- 5 58	9.89	+ .015	2	9.89	+0.17	2
97	ε Orionis	5 30	- 1 16	10.02	+ .036	5	10.62	-0.73	4
98	ζ Tauri	5 31	+21 4	9.58	- .017	7	9.70	-0.16	6
377	σ Aurigae	5 37	+49 46	9.34	+ .050	14	9.34	+0.74	14
378	130 Tauri	5 41	+17 41	9.26	+ .055	12	9.26	-1.08	12
100	κ Orionis	5 42	- 9 42	9.80	+ .058	6	9.80	-0.52	6
101	ν Aurigae	5 43	+39 6	9.70	+ .056	5	9.70	-0.26	5
559	δ Leporis	5 46	-20 53	....	....	..	8.10	-0.25	1
102	α Orionis	5 49	+ 7 23	10.15	+ .004	11	10.15	-1 10	11
379	δ Aurigae	5 50	+54 16	9.20	+ .044	13	9.26	+0.06	12
103	β Aurigae	5 51	+44 56	10.37	- .016	10	10.21	+0.31	9
104	ϑ Aurigae	5 52	+37 12	9.30	- .042	9	9.30	-0.44	9

No.	Star.	R. A.		Dec.	RIGHT ASCENSION.			DECLINATION.		
		h.	m.		1880+	<i>A B. J.</i>	Obs.	1880+	<i>A B. J.</i>	Obs.
				° ' "		<i>s</i>			"	
380	66 Orionis	5	59	+ 4 9	9.22	−0.020	14	9.22	−0.42	14
382	<i>ν</i> Orionis	6	1	+14 16	9.22	− .008	14	9.27	−0.60	13
381	36 Camelopardi	6	1	+65 44	9.34	+ .169	12	9.34	+0.16	13
381	36 Cam., S. P.	6	1	+65 44	9.00	+ .128	11	9.00	+0.40	11
383	22 H. Camelop.	6	6	+69 21	9.28	+ .038	13	9.28	+0.21	13
383	22 H. Cam., S. P.	6	6	+69 21	9.02	+ .020	12	9.02	−0.26	11
384	2 Lynceis	6	9	+59 2	9.43	− .004	12	9.43	−0.18	12
106	<i>μ</i> Geminorum	6	16	+22 34	10.36	− .034	12	10.45	−0.50	8
385	<i>ψ</i> ¹ Aurigae	6	16	+49 20	9.83	− .030	12	9.83	+0.08	12
386	8 Monocerotis	6	17	+ 4 38	9.26	− .022	12	9.26	−0.23	12
387	23 H. Camelop.	6	27	+79 40	9.32	− .019	12	9.27	+0.62	13
387	23 H. Cam., S. P.	6	27	+79 40	9.00	− .112	11	9.00	+0.59	11
388	8 Lynceis	6	27	+61 34	9.34	+ .066	11	9.30	−0.67	12
388	8 Lynceis, S. P.	6	27	+61 34	9.04	+ .056	12	9.04	−0.37	12
389	51 Aurigae	6	31	+39 29	9.32	+ .005	11	9.18	−0.14	12
107	<i>γ</i> Geminorum	6	31	+16 29	9.98	− .019	12	9.82	−0.47	13
108	<i>S</i> Monocerotis	6	34	+ 9 59	9.99	+ .001	8	9.99	−0.55	8
109	<i>ε</i> Geminorum	6	37	+25 14	9 35	+ .014	9	9.27	−0.99	8
390	<i>ψ</i> ⁶ Aurigae	6	38	+43 41	9.35	+ .084	12	9.35	−0.07	12
110	<i>ξ</i> Geminorum	6	39	+13 0	10.02	+ .020	12	10.26	−0.16	8
391	43 Camelopardi	6	41	+69 0	9.39	− .050	12	9.39	−1.10	12
391	43 Cam., S. P.	6	41	+69 0	9.00	− .079	12	9.00	−1.04	12
392	18 Monocerotis	6	42	+ 2 31	9.96	− .002	15	9.96	−0.01	15
393	24 H. Camelop.	6	44	+77 6	9.40	− .054	13	9.40	+0.30	14
393	24 H. Cam., S. P.	6	44	+77 6	9.00	− .118	13	9.00	−0.13	13
112	<i>θ</i> Geminorum	6	45	+34 5	10.27	− .036	8	10.03	−1.08	9
394	15 Lynceis	6	47	+58 33	9.24	− .036	11	9.26	−0.25	12
111	51 H. Cephei	6	48	+87 13	9.72	[− .294]	28	9.60	+0.18	28
111	51 H. Ceph., S. P.	6	48	+87 13	9.72	[− .227]	27	9.08	−0.02	20
566	<i>ε</i> Can. Majoris	6	54	−28 49	12.11	+ .005	2	12.11	+0.05	3

No.	Star.	R. A.	Dec.	RIGHT ASCENSION.			DECLINATION.		
				1880+	<i>A B. J.</i>	<i>Obs.</i>	1880+	<i>A B. J.</i>	<i>Obs.</i>
		<i>h. m.</i>	<i>° '</i>		<i>s.</i>			<i>"</i>	
113	ζ Geminorum	6 57	+20 43	9.56	-0.019	19	9.43	-0.60	18
568	δ Can. Majoris	7 3	-26 13	12.11	- .013	3	12.12	+0.50	2
395	63 Aurigae	7 4	+39 29	9.34	- .027	12	9.34	-0.87	12
396	64 Aurigae	7 10	+41 4	9.42	- .076	11	9.42	-0.28	11
114	λ Geminorum	7 11	+16 44	9.66	- .001	16	9.83	-0.80	16
115	δ Geminorum	7 13	+22 11	10.16	+ .003	10	9.88	-0.93	9
397	19 Lyncis <i>seq.</i>	7 13	+55 29	9.47	+ .052	13	9.47	-0.04	13
117	ι Geminorum	7 18	+28 0	9.46	- .016	20	9.40	-0.97	14
116	Gr. 1308	7 19	+68 41	10.03	- .185	6	10.03	+0.77	6
116	Gr. 1308, S. P.	7 19	+68 41	8.50	- .130	1	8.50	+0.14	1
118	β Can. Minoris	7 21	+ 8 30	9.93	- .006	23	10.00	-0.72	15
398	ρ Geminorum	7 22	+32 0	9.48	+ .019	12	9.48	-0.92	12
119	α Geminorum	7 27	+32 7	10.24	+ .025	13	10.35	-0.15	9
120	α Can. Minoris	7 33	+ 5 30	9.24	+ .024	5	9.16	-0.96	4
399	24 Lyncis	7 33	+58 58	9.56	- .044	12	9.56	+0.11	12
121	κ Geminorum	7 37	+24 39	10.70	+ .008	6	10.70	-0.76	6
122	β Geminorum	7 38	+28 17	9.71	- .036	19	9 68	-0.38	10
400	π Geminorum	7 40	+33 41	9.50	- .049	12	9.50	-0.74	13
402	26 Lyncis	7 46	+47 50	9.54	+ .014	13	9.54	+0.30	13
401	Gr. 1374	7 47	+74 12	9.58	+ .108	12	9.58	-0.50	11
401	Gr. 1374, S. P.	7 47	+74 12	9.06	+ .018	13	9.06	-0.31	13
403	53 Camelopardi	7 52	+60 37	9.59	- .132	12	9.59	+0.04	12
403	53 Cam., S. P.	7 52	+60 37	9.02	- .197	13	9.02	-0.11	13
404	χ Geminorum	7 56	+28 6	9.60	+ .004	12	9.60	-0.66	12
405	27 Lyncis	8 0	+51 49	9.57	+ .100	12	9.54	-0.42	13
406	Br. 1147	8 5	+76 5	9.56	+ .088	12	9.56	-0.02	12
406	Br. 1147, S. P.	8 5	+76 5	9.08	- .064	14	9.08	-0.55	13
123	β Cancri	8 10	+ 9 31	9.82	+ .017	25	9.70	-0.61	20
407	31 Lyncis	8 15	+43 32	9.65	- .070	13	9.65	-0.16	14
124	Br. 1197	8 20	- 3 32	9.93	+ .054	18	9.95	-0.60	16

No.	Star.	R. A.	Dec.	RIGHT ASCENSION.			DECLINATION.		
				1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i> <i>m.</i>	<i>°</i> <i>'</i>		<i>s.</i>			<i>"</i>	
125	α Ursae Majoris	8 21	+61 5	9.58	-0.020	23	9.57	+0.04	16
125	α Urs. Maj., S. P.	8 21	+61 5	9.01	- .078	5	9.01	+0.58	5
408	Gr. 1450	8 25	+38 23	9.61	+ .084	12	9.61	+0.65	12
409	η Cancri	8 26	+20 48	9.65	- .006	12	9.65	-0.43	12
410	Gr. 1446	8 27	+74 0	9.61	- .038	12	9.61	-0.28	11
410	Gr. 1446, S. P.	8 27	+74 0	9.08	- .076	13	9.08	-0.23	13
411	Gr. 1460	8 31	+53 5	9.62	+ .152	12	9.60	+0.10	11
126	δ Cancri	8 38	+18 33	9.52	+ .017	14	9.55	-0.55	13
127	ζ Cancri	8 40	+29 9	10.30	- .024	12	10.30	-0.90	12
128	ε Hydrae	8 40	+ 6 49	9.62	+ .006	11	9.62	-0.87	11
412	σ^2 Cancri <i>med.</i>	8 47	+30 59	9.62	+ .005	12	9.62	-0.46	12
129	ζ Hydrae	8 49	+ 6 21	9.75	- .004	6	9.75	-0.69	6
130	ι Ursae Majoris	8 51	+48 28	9.91	- .053	3	9.91	+0.20	3
131	α Cancri	8 52	+12 16	10.95	+ .053	3	10.95	-0.74	3
413	ρ Ursae Majoris	8 52	+68 3	9.70	- .059	12	9.70	-0.07	12
413	ρ Urs. Maj., S. P.	8 52	+68 3	9.14	- .178	13	9.14	-0.31	13
132	10 Ursae Majoris	8 53	+42 13	10.30	+ .040	1	10.30	-0.20	1
414	Gr. 1501	8 55	+54 43	9.70	- .117	13	9.70	-0.48	13
133	κ Ursae Majoris	8 56	+47 35	10.06	- .030	10	10.06	+0.39	10
415	σ^2 Ursae Majoris	9 0	+67 34	9.62	- .082	12	9.62	-0.39	12
415	σ^2 Urs. Maj., S. P.	9 0	+67 34	9.10	- .168	13	9.10	-0.40	12
416	36 Lyncis	9 6	+43 40	9.64	- .166	12	9.64	-0.43	13
134	θ Hydrae	9 8	+ 2 46	10.03	+ .028	15	9.98	-0.62	15
135	38 Lyncis	9 11	+37 16	9.77	- .009	8	9.76	-0.53	8
417	83 Cancri	9 12	+18 10	9.70	+ .015	12	9.70	-0.11	12
136	40 Lyncis	9 14	+34 51	9.86	+ .025	16	9.47	-0.46	14
137	1 H. Draconis	9 21	+81 48	9.85	[+ .346]	34	9.86	-0.05	29
137	1 H. Drac., S. P.	9 21	+81 48	9.99	[+ .244]	54	9.98	-0.31	42
139	h Ursae Majoris	9 22	+63 32	10.27	+ .107	6	10.27	-0.22	6
418	d Ursae Majoris	9 24	+70 18	9.70	- .043	13	9.70	-0.04	13

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
						1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i> <i>m.</i>		<i>°</i> <i>'</i>			<i>s.</i>			<i>"</i>	
418	δ Urs. Maj., S. P.	9 24		+70 18		9.12	-0.154	12	9.12	-0.30	12
140	ϑ Ursae Majoris	9 25		+52 10		9.94	+ .004	13	10.01	+0.68	11
419	10 Leon. Minoris	9 27		+36 53		9.79	- .022	13	9.79	-0.56	13
420	Gr. 1564	9 32		+69 44		9.78	+ .030	13	9.78	-0.16	13
420	Gr. 1564, S. P.	9 32		+69 44		9.14	+ .006	12	9.14	-0.68	12
141	σ Leonis	9 35		+10 23		9.70	+ .006	19	9.68	-0.52	15
142	ε Leonis	9 39		+24 16		9.90	- .003	12	9.96	-0.66	10
143	ν Ursae Majoris	9 43		+59 33		9.68	- .022	16	9.66	-0.58	14
144	μ Leonis	9 46		+26 31		9.77	+ .027	11	9.66	-0.76	9
421	Gr. 1586	9 48		+73 24		9.74	+ .100	11	9.74	-0.44	11
421	Gr. 1586, S. P.	9 48		+73 24		9.17	+ .088	12	9.17	-0.62	12
422	19 Leon. Minoris	9 50		+41 34		9.72	+ .016	11	9.72	-0.60	11
423	π Leonis	9 54		+ 8 34		9.72	+ .027	11	9.72	-0.72	11
145	η Leonis	10 1		+17 17		10.09	- .084	7	10.09	-0.29	7
146	α Leonis	10 2		+12 30		9.74	+ .024	9	9.44	-0.66	8
147	λ Ursae Majoris	10 10		+43 27		9.74	+ .007	12	9.74	+0.54	12
148	ζ Leonis	10 10		+23 57		9.76	+ .023	10	9.76	-0.98	10
149	μ Ursae Majoris	10 15		+42 3		9.86	- .019	11	9.86	+0.07	11
424	30 H. Urs. Maj.	10 16		+66 7		9.74	+ .079	11	9.74	-0.66	11
424	30 H. U. M., S. P.	10 16		+66 7		9.12	+ .028	12	9.12	-0.27	12
425	30 H. Camelop.	10 17		+83 7		9.74	+ .099	11	9.74	-0.30	11
425	30 H. Cam., S. P.	10 17		+83 7		9.12	- .064	13	9.12	-0.34	13
426	31 Leon. Minoris	10 21		+37 16		9.72	+ .013	12	9.72	-0.86	12
427	36 Ursae Majoris	10 23		+56 32		9.74	+ .027	13	9.74	-0.26	12
150	9 H. Draconis	10 25		+76 16		9.75	[+ .222]	23	9.75	+0.10	21
150	9 H. Drac., S. P.	10 25		+76 16		10.07	[+ .176]	42	9.82	-0.07	35
428	37 Ursae Majoris	10 28		+57 38		9.75	+ .094	12	9.75	-0.34	12
429	35 H. Urs. Maj.	10 35		+69 39		9.75	- .086	12	9.75	+0.04	12
429	35 H. U. M., S. P.	10 35		+69 39		9.18	- .140	12	9.18	+0.18	12
430	41 Leon. Minoris	10 37		+23 45		9.78	+ .035	12	9.78	-0.58	13

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
						1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i>	<i>m.</i>	<i>°</i>	<i>'</i>		<i>s.</i>			<i>"</i>	
431	42 Leon. Minoris	10	39	+31	15	9.76	+0.022	12	9.76	-1.10	11
432	<i>l</i> Leonis	10	43	+11	7	9.76	+ .016	12	9.76	-0.46	12
152	46 Leon. Minoris	10	47	+34	48	9.76	+ .039	9	9.76	-1.48	7
433	Br. 1508	10	51	+78	21	9.75	- .020	12	9.75	-0.40	12
433	Br. 1503, S. P.	10	51	+78	21	9.13	- .106	13	9.13	-0.36	13
153	β Ursae Majoris	10	55	+56	58	9.73	- .014	9	9.73	-0.36	8
154	α Ursae Majoris	10	56	+62	20	9.93	- .014	7	9.93	-0.45	7
434	χ Leonis	10	59	+ 7	55	9.75	+ .055	12	9.75	-0.91	12
155	ψ Ursae Majoris	11	3	+45	5	9.86	- .015	8	9.94	-0.02	7
156	δ Leonis	11	8	+21	7	9.66	- .009	11	9.76	-1.00	10
157	ϑ Leonis	11	8	+16	1	9.77	+ .020	8	9.77	-1.04	8
435	Gr. 1757	11	10	+50	4	9.76	- .034	12	9.76	-0.64	12
158	ξ Urs. Maj., <i>med.</i>	11	12	+32	8	9.28	+ .070	3	9.28	-0.94	3
159	ν Ursae Majoris	11	12	+33	41	9.76	- .129	7	9.76	-0.63	6
160	σ Leonis	11	15	+ 6	37	9.74	+ .002	6	9.81	-0.77	5
436	Gr. 1771	11	16	+64	55	9.75	+ .236	12	9.75	+0.06	12
436	Gr. 1771, S. P.	11	16	+64	55	9.14	+ .185	12	9.08	+0.30	13
161	ι Leonis	12	18	+11	8	9.88	+ .026	5	9.32	-0.70	4
437	58 Ursae Majoris	11	24	+43	46	9.76	+ .018	12	9.76	-0.34	12
162	λ Draconis	11	24	+69	56	9.50	[- .045]	11	9.48	-0.41	10
162	λ Draconis, S. P.	11	24	+69	56	8.98	[- .123]	13	8.85	+0.22	15
438	υ Leonis	11	31	- 0	12	9.76	+ .038	12	9.76	-0.60	12
439	3 Draconis	11	36	+67	21	9.76	- .112	12	9.76	-0.48	11
439	3 Draconis, S. P.	11	36	+67	21	9.24	- .186	12	9.24	-0.02	12
163	χ Ursae Majoris	11	40	+48	23	9.28	- .037	15	9.24	-0.13	14
164	β Leonis	11	43	+15	11	9.45	+ .020	9	9.42	-0.29	8
165	β Virginis	11	44	+ 2	23	9.64	+ .044	14	9.62	-0.94	13
166	γ Ursae Majoris	11	48	+54	18	9.64	- .022	14	9.62	+0.12	12
167	ϕ Virginis	11	59	+ 9	20	9.54	- .08	10	9.59	-0.73	9
440	Gr. 1852	11	59	+77	31	9.66	+ .094	12	9.66	-0.36	12

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
		h.	m.	°	'	1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
							s.			"	
440	Gr. 1852, S. P.	11	59	+77	31	9.14	-0.081	12	9.14	-0.17	12
168	4 H. Draconis	12	7	+78	13	9.60	[+ .005]	18	9.60	-0.50	18
168	4 H. Drac., S. P.	12	7	+78	13	9.63	[- .096]	28	9.22	-0.42	20
163	δ Ursae Majoris	12	9	+57	38	9.34	- .055	2	9.34	+0.14	2
441	2 Can. Ven.	12	10	+41	16	9.70	- .017	12	9.70	-0.95	12
170	η Virginis	12	14	- 0	3	9.52	+ .046	19	9.46	-0.08	16
442	6 Can. Ven.	12	20	+39	37	9.23	- .116	12	9.23	+0.24	12
443	20 Comae	12	24	+21	30	9.46	- .098	12	9.46	-0.68	12
444	74 Ursae Majoris	12	24	+59	0	9.60	- .103	12	9.60	-0.22	12
444	74 U. Maj., S. P.	12	24	+59	0	9.14	- .142	12	9.14	+0.29	12
445	8 Can. Ven.	12	28	+41	57	9.02	- .010	12	9.02	-0.10	12
171	κ Draconis	12	28	+70	23	8.89	+ .036	4	8.89	-0.07	4
171	κ Draconis, S. P.	12	28	+70	23	9.23	- .035	4	8.83	+1.20	6
446	24 Comae seq.	12	29	+18	58	9.62	- .032	12	9.62	-0.62	12
447	76 Ursae Majoris	12	36	+63	19	9.22	- .016	12	9.22	+0.04	12
447	76 U. Maj., S. P.	12	36	+63	19	9.14	- .074	12	9.14	+0.14	12
173	ε Ursae Majoris	12	49	+56	33	9.53	+ .021	8	9.49	+1.14	9
174	δ Virginis	12	50	+ 3	59	8.95	+ .017	6	8.82	-0.46	4
175	12 Can. Ven. seq.	12	50	+38	54	9.57	+ .011	10	9.56	-0.49	9
448	8 Draconis	12	51	+66	2	9.39	- .106	12	9.39	+0.06	12
448	8 Draconis, S. P.	12	51	+66	2	9.18	- .105	12	9.12	-0.34	13
176	ε Virginis	12	56	+11	33	9.43	- .006	24	9.42	-0.60	17
450	17 Can. Ven.	13	5	+39	5	9.32	+ .025	12	9.32	-0.52	12
177	43 Comae	13	6	+28	26	9.32	- .018	24	9.22	-0.78	16
451	20 Can. Ven.	13	12	+41	9	8.96	- .010	14	8.94	-0.48	15
587	α Virginis	13	19	-10	35	9.42	+ .068	4	9.42	-0.88	4
178	ζ Urs. Maj., pr.	13	19	+55	29	9.62	- .016	3	10.00	-0.16	3
452	Gr. 2001	13	23	+72	57	9.04	+ .034	12	9.04	-0.36	12
452	Gr. 2001, S. P.	13	23	+72	57	9.08	- .040	12	9.04	-0.14	13
453	69 Ursae Majoris	13	24	+60	30	9.05	- .052	12	9.41	+0.32	11

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
						1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i>	<i>m.</i>	<i>°</i>	<i>'</i>		<i>s.</i>			<i>"</i>	
453	69 Urs. Maj., S. P.	13	24	+60	30	9.26	-0.059	12	9.28	+0.51	11
179	ζ Virginis	13	29	- 0	1	8.41	+ .012	8	8.52	-0.61	7
454	17 H. Can. Ven.	13	29	+37	44	9.12	+ .062	12	9.12	-0.27	12
455	Gr. 2029	13	34	+71	48	9.05	- .044	12	9.05	-0.60	12
455	Gr. 2029, S. P.	13	34	+71	48	9.28	- .032	12	9.22	-0.06	13
180	τ Bootis	13	42	+18	0	9.08	- .016	13	9.08	-0.54	13
181	η Ursae Majoris	13	43	+49	51	8.91	- .076	14	8.90	-0.29	13
456	ι Draconis	13	48	+65	16	9.04	- .052	12	9.04	+0.22	12
456	ι Draconis, S. P.	13	48	+65	16	9.12	- .080	12	9.12	+0.24	12
182	η Bootis	13	49	+18	56	9.05	- .020	18	9.08	-0.64	16
183	τ Virginis	13	56	+ 2	4	8.71	+ .025	10	8.70	+0.36	8
457	11 Bootis	13	56	+27	55	8.86	- .035	12	8.98	-0.58	11
184	α Draconis	14	1	+64	54	8.96	- .030	18	8.96	-0.14	18
184	α Draconis, S. P.	14	1	+64	54	9.42	+ .036	3	9.42	+0.46	3
458	d Bootis	14	5	+25	36	8.88	- .008	12	8.88	-0.08	12
185	κ Virginis	14	7	- 9	45	8.81	.000	5	8.90	-0.67	4
459	4 Ursae Minoris	14	9	+78	3	8.88	+ .072	13	8.88	-0.50	13
459	4 Urs. Min., S. P.	14	9	+78	3	9.20	+ .004	12	9.06	-0.52	13
186	ι Virginis	14	10	- 5	28	9.37	+ .042	4	9.37	-0.56	4
187	α Bootis	14	10	+19	45	8.87	- .029	7	8.92	-0.60	6
188	λ Bootis	14	12	+46	35	8.90	+ .019	7	8.90	-0.36	7
189	ι Bootis	14	12	+51	52	9.39	- .065	5	9.39	+0.27	5
190	ϑ Bootis	14	21	+52	21	8.80	+ .029	9	8.80	-0.25	9
191	φ Virginis	14	22	- 1	44	9.30	+ .026	7	9.30	-0.71	7
192	ρ Bootis	14	27	+30	51	8.85	- .008	5	8.80	-0.17	6
193	γ Bootis	14	27	+38	47	9.36	- .025	4	9.36	-0.14	4
460	Gr. 2125	14	28	+60	42	8.38	+ .048	12	8.38	+0.66	12
460	Gr. 2125, S. P.	14	28	+60	42	9.26	+ .008	12	9.16	+0.88	14
461	33 Bootis	14	34	+44	52	9.46	- .002	12	9.46	+0.80	12
196	μ Virginis	14	37	- 5	10	9.13	+ .014	9	9.13	-0.57	9

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						1880+	<i>A. B. J.</i>	Obs.	1880+	<i>A. B. J.</i>	Obs.
		<i>h.</i>	<i>m.</i>	<i>°</i>	<i>'</i>		<i>s.</i>			<i>"</i>	
197	109 Virginis	14	40	+	2 21	8.89	+0.028	15	8.89	-0.54	14
590	α Librae	14	44	-	15 35	8.77	- .001	6	8.78	-0.08	7
462	Gr. 2164	14	48	+	59 44	8.96	- .008	12	8.96	-0.94	12
462	Gr. 2164, S. P.	14	48	+	59 44	9.20	- .004	12	9.10	-0.38	13
463	Piazzi XIV. 21	14	51	+	14 53	8.97	- .043	12	8.98	-0.92	11
198	β Ursae Minoris	14	51	+	74 36	8.83	- .023	5	8.83	+0.07	5
198	β Urs. Min., S. P.	14	51	+	74 36	9.80	+ .210	1	9.80	-0.89	1
464	2 H. Urs. Minoris	14	55	+	66 22	9.08	- .168	12	9.08	-1.00	12
464	2 H. U. M., S. P.	14	55	+	66 22	9.15	- .174	13	9.15	-0.81	14
199	β Bootis	14	57	+	40 49	8.91	- .018	10	9.03	-0.47	9
465	ψ Bootis	14	59	+	27 22	8.89	- .006	12	8.89	-0.68	12
466	3 Serpentis	15	9	+	5 20	8.90	- .030	12	8.90	-0.38	12
201	δ Bootis	15	11	+	33 43	8.94	- .049	7	8.94	-1.20	7
200	β Librae	15	11	-	8 58	9.10	+ .009	8	9.10	-0.41	8
467	1 H. Urs Minoris	15	13	+	67 45	8.90	+ .072	12	8.90	-0.18	12
467	1 H. U. M., S. P.	15	13	+	67 45	9.20	+ .052	12	9.20	+0.16	12
202	μ Bootis	15	20	+	37 45	8.40	+ .080	3	8.40	-0.06	3
468	τ^1 Serpentis	15	20	+	15 48	8.98	+ .038	12	8.98	-1.55	12
203	γ Ursae Minoris	15	20	+	72 13	9.04	[- .228]	7	9.04	-0.62	7
203	γ Urs. Min., S. P.	15	20	+	72 13	10.97	[- .137]	14	9.96	-0.05	5
204	ι Draconis	15	22	+	59 21	8.91	+ .020	2	8.91	-0.70	2
205	β Cor. Bor.	15	23	+	29 29	8.89	- .023	12	8.89	-0.28	12
206	ν^1 Bootis	15	26	+	41 12	8.90	- .038	8	8.90	-0.20	9
208	ϑ Cor. Bor.	15	28	+	31 43	9.39	+ .069	5	9.39	-0.19	5
209	α Cor. Bor.	15	30	+	27 5	8.94	- .004	16	8.94	-0.50	16
469	ϕ Bootis	15	33	+	40 42	9.04	- .044	12	9.04	-0.03	12
210	ζ Cor. Bor., <i>seq.</i>	15	35	+	36 59	8.85	+ .021	5	8.85	-0.32	5
211	γ Cor. Bor.	15	38	+	26 38	9.45	- .025	2	9.45	-0.28	2
212	α Serpentis	15	38	+	6 46	8.89	+ .021	9	8.89	-0.08	9
213	β Serpentis	15	41	+	15 45	9.19	+ .048	7	9.19	-1.04	7

No.	Star.	R. A.		Dec.	RIGHT ASCENSION.			DECLINATION.		
					1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i>	<i>m.</i>	<i>°</i>		<i>s.</i>			<i>"</i>	
215	κ Serpentis	15	43	+18 28	8.94	-0.036	6	8.94	-0.86	6
214	μ Serpentis	15	43	- 3 5	9.03	+ .043	5	9.03	-0.68	5
470	12 H. Draconis	15	44	+62 56	8.90	- .102	12	8.90	-0.34	12
470	12 H. Drac., S. P.	15	44	+62 56	9.18	- .104	11	9.13	-0.30	12
216	ε Serpentis	15	45	+ 4 48	9.40	+ .024	4	9.40	-0.05	4
217	ζ Ursae Minoris	15	47	+78 7	9.00	[- .022]	13	9.00	-0.12	12
217	ζ Urs. Min., S. P.	15	47	+78 7	9.46	[+ .130]	7	9.32	-0.46	2
218	γ Serpentis	15	51	+16 1	9.02	+ .026	6	9.13	-1.37	5
219	ε Cor. Bor.	15	53	+27 11	9.11	- .010	14	9.11	-0.32	14
471	Gr. 2296	15	55	+55 3	8.90	+ .094	13	8.90	-0.16	13
220	ϑ Draconis	15	59	+58 51	9.30	- .159	7	9.30	-0.27	7
221	φ Herculis	16	5	+45 13	9.34	+ .202	9	9.34	-0.02	9
222	δ Ophiuchi	16	8	- 3 24	8.94	+ .018	15	8.94	-0.72	15
223	ε Ophiuchi	16	12	- 4 25	9.05	+ .028	14	9.05	+0.32	13
472	19 Ursae Minoris	16	13	+76 9	8.93	+ .068	12	8.93	-0.04	12
472	19 Urs. Min., S. P.	16	13	+76 9	9.25	+ .108	12	9.25	+0.08	12
224	τ Herculis	16	16	+46 34	8.98	+ .094	12	8.96	-0.15	11
225	γ Herculis	16	17	+19 24	9.05	+ .043	8	8.96	-0.80	7
473	ω Herculis	16	20	+14 17	8.94	+ .070	12	8.94	-1.06	11
474	η Ursae Minoris	16	20	+76 0	9.02	- .149	13	9.02	-0.42	13
474	η Urs. Min., S. P.	16	20	+76 0	9.14	- .022	12	9.14	-0.16	12
475	Gr. 2343	16	22	+55 27	8.98	- .051	12	8.98	+0.47	13
226	η Draconis	16	22	+61 45	9.52	- .215	2	9.52	+0.81	3
226	η Draconis, S. P.	16	22	+61 45	9.94	- .200	1	9.94	-0.46	1
228	β Herculis	16	25	+21 43	8.94	+ .029	15	8.94	-0.27	15
229	λ Draconis	16	28	+69 0	9.30	+ .048	7	9.32	+0.43	8
229	λ Draconis, S. P.	16	28	+69 0	9.76	+ .052	5	9.72	-0.34	4
230	σ Herculis	16	30	+42 39	8.95	- .020	9	8.95	-0.07	9
476	Gr. 2373	16	35	+77 39	8.94	- .131	12	8.94	-0.22	12
476	Gr. 2373, S. P.	16	35	+77 39	9.18	- .059	13	9.18	+0.05	13

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
						1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i>	<i>m.</i>	<i>°</i>	<i>'</i>		<i>s.</i>			<i>"</i>	
231	ζ Herculis	16	37	+31	48	9.07	-0.108	8	9.07	-1.18	8
232	η Herculis	16	39	+39	7	9.28	- .035	8	9.28	-0.53	8
477	Gr. 2377	16	43	+56	58	8.94	- .138	13	8.94	0.00	13
478	49 Herculis	16	47	+15	9	8.94	- .015	12	8.94	+0.57	12
233	κ Ophiuchi	16	52	+ 9	32	8.96	+ .034	16	8.96	-0.82	16
234	ϵ Herculis	16	56	+31	5	8.50	+ .035	2	8.50	+0.23	2
235	ϵ Ursae Minoris	16	57	+82	13	9.00	[+ .032]	27	9.00	+0.04	25
235	ϵ Urs. Min., S. P.	16	57	+82	13	10.02	[+ .169]	40	9.86	-0.13	33
479	60 Herculis	17	0	+12	53	8.97	+ .036	12	8.97	-0.36	12
480	Gr. 2415	17	4	+40	39	9.06	+ .048	12	9.06	-0.06	12
236	ζ Draconis	17	8	+65	51	9.10	- .084	5	9.10	+0.02	5
236	ζ Draconis, S. P.	17	8	+65	51	9.54	+ .020	3	9.54	-0.59	3
237	α Herculis	17	9	+14	30	8.94	+ .005	9	8.97	+0.36	8
238	δ Herculis	17	10	+24	58	8.73	+ .001	5	8.73	-0.26	5
239	π Herculis	17	11	+36	56	9.22	- .034	4	9.22	+0.62	4
481	χ Herculis	17	23	+48	21	8.99	+ .068	12	8.99	+0.62	12
240	β Draconis	17	27	+52	22	9.11	- .063	9	9.09	+0.34	8
241	α Ophiuchi	17	29	+12	38	9.09	+ .030	11	9.09	+0.09	11
482	f Draconis	17	32	+68	12	8.98	+ .070	13	8.98	+0.56	13
482	f Draconis, S. P.	17	32	+68	12	9.26	+ .040	13	9.26	+0.14	13
244	ι Herculis	17	36	+46	3	9.14	- .065	3	9.14	+0.19	3
483	ω Draconis	17	37	+68	48	8.98	- .112	12	8.98	+0.66	12
483	ω Draconis, S. P.	17	37	+68	48	9.25	- .049	12	9.25	+0.51	12
245	β Ophiuchi	17	38	+ 4	36	8.73	+ .025	6	8.73	-0.33	6
246	μ Herculis	17	42	+27	47	8.91	- .040	5	9.02	+0.36	4
247	γ Ophiuchi	17	42	+ 2	44	8.55	- .008	5	8.55	-0.17	5
484	ψ Drac. Austr.	17	43	+72	12	8.98	+ .055	13	8.98	+0.24	13
484	ψ Dr. Aus., S. P.	17	43	+72	12	9.19	+ .115	12	9.19	+0.16	12
248	ξ Draconis	17	51	+56	53	8.76	+ .004	5	8.76	+0.37	5
249	ϑ Herculis	17	52	+37	15	9.13	+ .036	9	9.13	+0.03	9

No.	Star.	R. A.		Dec.	RIGHT ASCENSION.			DECLINATION.		
		h.	m.		1880+	<i>A B. J.</i>	Obs.	1880+	<i>A B. J.</i>	Obs.
250	ν Ophiuchi	17	52	— 9 45	10.63	^s 0.000	3	10.63	—1.12	3
251	ξ Herculis	17	53	+29 15	8.55	— .030	1	....	.....	..
252	γ Draconis	17	54	+51 30	9.52	— .040	1	9.52	+1.50	1
485	35 Draconis	17	54	+76 58	8.98	— .074	14	8.98	+0.44	14
485	35 Draconis, S. P.	17	54	+76 58	9.38	— .046	13	9.40	+0.34	12
253	67 Ophiuchi	17	55	+ 2 56	8.89	— .081	3	8.89	—0.37	3
601	γ Sagittarii	17	58	—30 25	11.71	— .048	4	11.71	+0.63	4
254	72 Ophiuchi	18	2	+ 9 32	8.68	+ .005	9	8.68	+0.06	9
255	α Herculis	18	3	+28 44	10.03	— .023	10	10.16	—0.26	11
256	δ Ursae Minoris	18	7	+86 36	9.41	[— .151]	31	9.41	+0.18	31
256	δ Urs. Min., S. P.	18	7	+86 36	9.64	[— .174]	30	9.60	+0.10	27
486	Gr. 2533	18	12	+42 7	9.02	+ .130	13	9.02	—0.14	13
487	36 Draconis	18	13	+64 21	9.00	+ .005	12	9.00	+0.70	12
487	36 Draconis, S. P.	18	13	+64 21	9.26	+ .086	12	9.24	—0.18	11
257	η Serpentis	18	15	— 2 55	9.55	+ .032	13	9.39	—0.87	12
258	109 Herculis	18	19	+21 43	9.11	+ .001	16	8.94	+0.13	13
488	b Draconis	18	22	+58 44	9.01	— .026	13	9.01	+0.72	13
488	b Draconis, S. P.	18	22	+58 44	....	.....	..	9.06	0.00	1
489	φ Draconis	18	22	+71 16	9.02	— .093	13	9.02	+0.22	13
489	φ Draconis, S. P.	18	22	+71 16	9.32	— .016	12	9.32	+0.03	12
259	χ Draconis, S. P.	18	23	+72 41	9.59	+ .069	6	9.59	—0.49	6
260	α Lyrae	18	33	+38 40	9.15	— .066	6	9.15	—0.25	6
490	Gr. 2655	18	35	+77 27	9.02	— .218	12	9.02	+0.96	12
490	Gr. 2655, S. P.	18	35	+77 27	9.26	— .168	12	9.26	+0.81	12
491	Gr. 2640	18	35	+65 23	9.02	+ .073	12	9.02	+0.69	12
491	Gr. 2630, S. P.	18	35	+65 23	9.43	+ .108	10	9.31	+0.24	9
261	ε Lyrae <i>pr. med.</i>	18	40	+39 33	8.46	+ .050	1	8.46	—0.83	1
263	110 Herculis	18	40	+20 26	10.42	+ .005	11	10.26	+0.35	10
264	β Lyrae	18	46	+33 14	8.57	+ .010	2	8.57	—0.41	2
603	σ Sagittarii	18	48	—26 25	11.72	— .027	8	11.72	+0.69	8

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
						1880+	<i>A B. J.</i>	Obs.	1880+	<i>A B. J.</i>	Obs.
		<i>h.</i>	<i>m.</i>	<i>°</i>	<i>'</i>		<i>s.</i>			<i>"</i>	
266	♄ Serpentis <i>pr.</i>	18	50	+ 4	3	9.16	+0.015	3	9.16	-1.29	3
492	<i>R</i> Lyrae	18	51	+43	48	9.00	- .008	12	9.00	+0.38	12
267	ε Aquilae	18	54	+14	55	9.39	- .003	5	9.39	+0.15	5
268	γ Lyrae	18	54	+32	32	10.26	+ .002	8	10.06	-0.39	7
493	ν Draconis	18	55	+71	8	9.02	- .075	12	9.02	+0.56	12
493	ν Draconis, S. P.	18	55	+71	8	9.28	+ .021	12	9.28	+0.26	12
270	ζ Aquilae	19	0	+13	42	9.42	+ .011	11	9.42	-0.21	11
269	λ Aquilae	19	0	- 5	2	9.34	+ .046	14	9.34	+0.07	14
494	ι Lyrae	19	3	+35	55	9.00	- .035	13	9.00	-0.08	13
271	δ Draconis	19	12	+67	28	8.57	+ .010	1	8.57	+0.65	1
271	δ Draconis, S. P.	19	12	+67	28	8.94	+ .055	2	8.94	-0.31	2
496	♄ Lyrae	19	12	+37	56	9.01	+ .040	12	9.01	+0.46	12
495	ω Aquilae	19	12	+11	23	9.02	+ .004	12	9.02	-0.43	12
272	κ Cygni	19	14	+53	9	10.51	- .045	14	10.51	+0.35	14
273	τ Draconis	19	17	+73	9	9.45	- .055	6	9.45	+0.50	6
273	τ Draconis, S. P.	19	17	+73	9	8.92	+ .145	2	8.92	-0.12	2
274	δ Aquilae	19	19	+ 2	53	9.60	+ .015	25	9.48	-0.15	23
275	β Cygni	19	26	+27	43	9.37	- .006	20	9.37	+0.27	19
276	ι Cygni	19	26	+51	29	10.98	- .062	19	10.82	+0.54	16
497	Gr. 2900	19	28	+79	22	9.01	+ .142	13	9.01	+0.17	13
497	Gr. 2900, S. P.	19	28	+79	22	9.40	+ .258	12	9.40	+0.10	12
498	♄ Cygni	19	33	+49	57	9.04	- .030	11	9.04	+0.14	11
284	λ Ursae Minoris	19	33	+88	58	9.88	[+ .042]	55	9.86	+0.52	52
284	λ Urs. Min., S. P.	19	33	+88	58	9.72	[- .432]	43	9.62	+0.29	26
499	15 Cygni	19	40	+37	5	9.09	- .022	13	9.09	+0.09	13
277	γ Aquilae	19	41	+10	20	10.54	+ .002	17	10.38	-0.40	16
278	δ Cygni	19	41	+44	51	9.93	- .070	6	9.56	+0.71	5
279	δ Sagittae	19	42	+18	15	9.85	+ .026	16	9.70	-0.69	12
280	α Aquilae	19	45	+ 8	34	9.48	- .014	20	9.48	+0.05	13
281	η Aquilae	19	46	+ 0	43	9.61	+ .031	4	9.61	0.00	4

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
		h.	m.	°	'	1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
282	ϵ Draconis	19	48	+69	59	9.44	^{s.} -0.059	5	9.44	+0.82	5
282	ϵ Draconis, S. P.	19	48	+69	59	9.22	+ .310	1	9.22	+0.53	1
283	β Aquilae	19	49	+ 6	7	10.01	+ .036	27	10.01	-0.16	25
285	ψ Cygni	19	52	+52	8	10.54	- .021	11	10.54	+0.84	11
286	γ Sagittae	19	53	+19	11	10.48	.000	15	10.48	-0.68	15
287	δ Aquilae	20	5	- 1	8	9.85	+ .045	21	9.85	-0.06	22
288	α^1 seq. Cygni	20	10	+46	24	9.34	- .038	8	9.34	+0.86	8
500	33 Cygni	20	10	+56	13	9.08	- .050	13	9.08	+1.28	13
606	α^1 Capricorni	20	11	-12	50	11.74	+ .052	15	11.74	-0.30	14
501	24 Vulpeculae	20	12	+24	19	9.14	+ .008	12	9.14	+0.82	12
502	κ Cephei	20	12	+77	22	9.09	+ .106	13	9.09	+1.13	13
502	κ Cephei, S. P.	20	12	+77	22	9.62	+ .195	12	9.62	+0.31	12
289	γ Cygni	20	18	+39	54	10.06	- .046	35	10.00	-0.15	33
291	δ Cephei	20	27	+62	37	9.65	- .003	9	9.65	+1.13	9
290	ϵ Delphini	20	27	+10	55	10.64	+ .019	19	10.64	+0.05	19
292	β Delphini	20	32	+14	12	11.26	+ .039	15	11.10	+0.23	16
504	73 Draconis	20	32	+74	34	9.08	+ .004	13	9.08	+0.38	13
504	73 Draconis, S. P.	20	32	+74	34	9.62	+ .016	12	9.62	+0.18	12
503	κ Delphini	20	33	+ 9	41	9.14	+ .010	12	9.14	+0.50	12
293	α Delphini	20	34	+15	31	10.30	+ .017	13	10.04	+0.08	11
294	α Cygni	20	37	+44	53	10.34	- .050	29	10.30	+0.28	28
295	δ Delphini	20	38	+14	40	9.21	+ .022	9	9.21	+0.04	9
297	ϵ Aquarii	20	41	- 9	53	11.29	+ .036	8	11.29	+1.01	8
298	ϵ Cygni	20	41	+33	33	10.14	- .028	4	9.61	-0.23	3
505	6 H. Cephei	20	42	+57	11	9.09	+ .044	13	9.09	+0.82	13
299	η Cephei	20	43	+61	24	10.17	- .075	2	10.17	+1.19	2
299	η Cephei, S. P.	20	43	+61	24	10.24	+ .020	5	10.24	+0.13	5
506	λ Cygni	20	43	+36	5	9.12	+ .038	12	9.12	+0.20	12
507	32 Vulpeculae	20	49	+27	38	9.07	- .035	12	9.07	+0.30	11
508	76 Draconis	20	50	+82	7	9.10	[+ .108]	13	9.10	+0.84	13

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
		h.	m.	°	'	1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
508	76 Draconis, S. P.	20	50	+82	7	10.08	[+0.038]	19	9.58	+0.55	15
509	Br. 2749	20	52	+80	8	9.08	— .276	15	9.08	+0.20	15
509	Br. 2749, S. P.	20	52	+80	8	9.66	— .213	13	9.66	+0.01	13
300	ν Cygni	20	53	+40	44	11.58	— .011	17	11.56	—0.32	16
301	ξ Cygni	21	0	+43	29	9.03	— .178	15	9.03	+0.67	15
611	ν Aquarii	21	3	—11	49	8.53	— .010	2	8.53	+0.61	2
510	Br. 2777	21	7	+77	40	9.09	+ .070	13	9.09	+0.56	13
510	Br. 2777, S. P.	21	7	+77	40	9.76	+ .073	12	9.76	+0.16	12
303	ζ Cygni	21	8	+29	46	10.80	+ .014	12	10.69	—0.02	11
511	Gr. 3415	21	9	+59	32	9.15	+ .004	11	9.15	+0.96	11
304	α Equulei	21	10	+ 4	47	9.97	+ .019	24	9.74	—0.23	20
305	τ Cygni	21	10	+37	34	10.63	— .040	3	10.63	—0.83	3
306	α Cephei	21	15	+62	7	9.78	— .064	15	9.78	+1.38	14
306	α Cephei, S. P.	21	15	+62	7	10.26	— .020	3	10.26	+0.34	3
512	1 Pegasi	21	16	+19	20	9.08	+ .032	12	9.08	+0.19	12
513	g Cygni	21	25	+46	3	10.07	+ .056	18	10.01	+1.05	17
307	β Aquarii	21	25	— 6	3	9.42	+ .008	11	8.94	+0.25	8
308	β Cephei	21	27	+70	4	10.06	— .022	17	10.00	+1.02	12
514	74 Cygni	21	32	+39	55	9.09	— .006	12	9.09	+0.85	12
515	13 H. Cephei	21	35	+56	59	9.10	+ .042	12	9.10	+0.82	12
309	ε Pegasi	21	38	+ 9	22	10.02	— .020	38	10.16	—0.35	34
310	k Pegasi	21	39	+25	8	9.02	+ .051	11	9.08	+0.26	9
516	11 Cephei	21	40	+70	48	9.14	— .028	13	9.14	+0.74	13
516	11 Cephei, S. P.	21	40	+70	48	9.74	+ .047	11	9.74	+0.09	11
517	π^2 Cygni	21	42	+48	48	9.12	— .040	13	9.12	+0.54	13
518	16 Pegasi	21	48	+25	24	9.11	+ .08	12	9.11	+0.40	12
519	20 Pegasi	21	55	+12	35	9.11	— .032	12	9.11	+0.55	12
311	α Aquarii	22	0	— 0	51	10.00	+ .034	23	9.94	—0.24	20
520	20 Cephei	22	1	+62	14	9.15	+ .022	11	9.15	+0.38	12
520	20 Cephei, S. P.	22	1	+62	14	9.74	+ .092	12	9.74	+0.02	12

No.	Star.	R. A.		Dec.		RIGHT ASCENSION.			DECLINATION.		
						1880+	<i>A B. J.</i>	<i>Obs.</i>	1880+	<i>A B. J.</i>	<i>Obs.</i>
		<i>h.</i>	<i>m.</i>	<i>°</i>	<i>'</i>		<i>s.</i>			<i>"</i>	
312	ι Pegasi	22	1	+24	48	9.74	-0.013	9	9.74	+0.29	9
314	ς Pegasi	22	4	+ 5	39	9.94	- .014	25	9.68	-0.16	24
315	π Pegasi	22	5	+32	38	8.66	- .140	1	8.66	+0.03	1
316	ζ Cephei	22	7	+57	39	10.57	+ .026	21	10.51	+0.47	20
521	24 Cephei	22	7	+71	47	9.10	+ .032	12	9.10	+0.31	12
521	24 Cephei, S. P.	22	7	+71	47	9.82	+ .110	11	9.82	+0.11	11
317	γ Aquarii	22	15	- 1	56	11.56	+ .040	17	11.36	-0.30	18
523	31 Pegasi	22	16	+11	39	9.16	+ .023	12	9.16	+0.10	12
524	3 Lacertae	22	19	+51	40	9.16	- .002	12	9.16	+0.70	12
320	η Aquarii	22	29	- 0	41	9.63	+ .028	31	9.62	-0.01	29
525	31 Cephei	22	33	+73	4	9.13	- .170	12	9.13	+0.21	12
525	31 Cephei, S. P.	22	33	+73	4	9.74	- .108	12	9.74	+0.08	12
526	10 Lacertae	22	34	+38	28	9.42	- .016	14	9.42	+0.19	13
527	30 Cephei	22	34	+63	0	9.12	+ .062	11	9.12	+1.02	11
527	30 Cephei, S. P.	22	34	+63	0	9.76	+ .102	9	9.76	+0.52	9
321	ζ Pegasi	22	35	+10	15	11.36	+ .014	14	11.36	+0.09	14
322	η Pegasi	22	37	+29	38	10.98	- .040	15	10.59	-0.39	13
528	13 Lacertae	22	39	+41	14	9.22	+ .006	12	9.22	+0.70	12
323	λ Pegasi	22	41	+22	59	9.63	- .016	22	9.42	-0.03	18
324	μ Pegasi	22	44	+24	1	9.14	- .014	15	9.14	-0.02	14
325	ι Cephei	22	45	+65	37	9.23	- .020	13	9.16	+0.61	1
326	λ Aquarii	22	46	- 8	9	9.90	+ .057	22	9.96	+0.59	21
327	σ Andromedae	22	56	+41	44	9.80	- .006	22	9.46	+0.37	23
328	β Pegasi	22	58	+27	29	9.96	- .038	14	9.92	+0.10	15
329	α Pegasi	22	59	+14	36	9.14	+ .014	18	9.14	+0.12	16
529	π Cephei	23	4	+74	47	9.12	- .032	13	9.12	+0.51	13
529	π Cephei, S. P.	23	4	+74	47	9.76	- .002	12	9.76	+0.34	11
530	Br. 3077	23	7	+56	33	9.13	+ .036	12	9.07	+0.86	13
330	γ Piscium	23	11	+ 2	40	9.14	+ .057	17	9.14	+0.16	17
531	τ Pegasi	23	15	+23	8	9.78	+ .002	15	9.71	+0.36	16

No.	Star.	R.A.		Dec.	RIGHT ASCENSION.			DECLINATION.		
					1880+	Δ B. J.	Obs.	1880+	Δ B. J.	Obs.
		<i>h.</i>	<i>m</i>	<i>°</i>		<i>s</i>			<i>"</i>	
532	ν Pegasi	23	19	+22 47	9.14	+0.082	12	9.14	+0.32	13
533	4 Cassiopeae	23	19	+61 40	9.18	+ .004	12	9.12	+0.88	13
533	4 Cassiop., S. P.	23	19	+61 40	9.76	- .014	12	9.76	+0.62	12
534	κ Piscium	23	21	+ 0 39	10.03	+ .044	19	10.04	-0.05	17
535	70 Pegasi	23	23	+12 9	9.80	+ .038	17	9.80	+0.38	17
536	72 Pegasi	23	28	+30 43	9.13	+ .032	12	9.13	+0.39	12
331	λ Andromedae	23	32	+45 51	9.15	- .045	12	9.15	+0.94	11
332	ι Andromedae	23	32	+42 39	10.26	- .026	14	10.08	+0.57	15
334	γ Cephei	23	34	+77 1	9.16	[+ .009]	27	9.16	+1.04	27
334	γ Cephei, S. P.	23	34	+77 1	9.60	[+ .056]	25	9.58	+0.78	22
335	κ Andromedae	23	34	+43 43	11.80	- .077	7	11.80	+0.28	6
621	ω^2 Aquarii	23	37	-15 9	....	.....	..	7.84	-0 26	1
537	41 H. Cephei	23	42	+67 11	9.14	+ .106	12	9.14	+0.40	12
537	41 H. Ceph., S. P.	23	42	+67 11	9.74	+ .152	12	9.74	+0.54	12
622	Lac. δ Sculpt.	23	43	-28 44	....	.....	..	7.84	+0.21	1
538	ϕ Pegasi	23	46	+18 30	10.03	+ .025	19	9.72	+0.40	22
539	ρ Cassiopeae	23	48	+56 53	9.18	+ .020	12	9.18	+1.05	11
336	ω Piscium	23	53	+ 6 15	9.16	+ .032	22	9.12	-0.57	22

PUBLICATIONS
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WASHBURN OBSERVATORY,

GEORGE C. COMSTOCK, DIRECTOR.

VOL. VIII. PART 2.

MERIDIAN CIRCLE OBSERVATIONS OF MARS AT THE OPPOSITION OF 1892.

PREPARED FOR PUBLICATION BY

ALBERT S. FLINT, ASSISTANT ASTRONOMER.

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The Washburn Observatory.

FOUNDED BY

Cadwallader C. Washburn,

Born 1818; Died 1882.

INTRODUCTION.

The following observations were made in response to a circular letter from Captain . V. McNair, U. S. N., Superintendent of the United States Naval Observatory, prepared by Professor John R. Eastman, U. S. N., and dated April 29, 1892.

The instrument employed was the Repsold meridian circle of this observatory, of 12.2 cm. aperture and 143.7 cm. focal length. The same ocular, of power 149, was used throughout. A full description of the instrument is given in Publications of the Washburn Observatory, Vol. II. The only novel feature during this series of observations was the use of a reversing prism. This had a base 9.0 mm. long and 6.0 mm. wide and was 5.5 mm. high. It was contained within a short cap which fitted over the outer edge of the eye-piece, and the prism was attached to one end of a lever pivoted at one side of the cap. By pushing the other end of the lever, which projected outside through a slot, the prism could easily be brought into the emergent beam of light or put to one side. All reticule lines were spider threads, as in all recent work with this instrument.

The observations were made by Prof. George C. Comstock and Mr. Albert S. Flint.

Every effort was made on our part to secure the uniform co-operation asked for in the circular letter. Owing to the lateness of its receipt, however, and the inadaptability of the prism first mounted, the use of the prism was not introduced until July 24. Also, instead of attempting to have the horizontal threads 16" apart, as recommended in the letter, they were left at their normal distance 11". No observations of right ascension were made.

The general conditions of observing were the same as for previous work with this instrument. The normal method was as follows: Two observers took part, and, alternately by dates, each made all the bisections at the telescope while the other read the microscopes and made all the record. In the case of the stars the microscopes were read once only, each sensibly at the same time with a bisection of the star; but on Mars they were read twice, beginning and ending about half a minute before and after the series of bisections of Mars. On August 16, 17, September 1, 21, dates on which as indicated in the tables following, one observer worked alone, the microscopes were read twice on the stars also, once before and once after the series of bisections of the star. The circle was set to the nearest even minute, clamped, and set fine by the first microscope so that a circle division mark appeared between the microscope threads when the head of the microscope was set at zero seconds. Four bisections, symmetrical with respect to the middle thread, were made on the stars as well as on Mars; and on the stars the first and fourth bisections were made with the thread nearer the micrometer head, the second and third bisections with the other thread. The bisections were made at transit threads A_2 , C_2 , E_2 , G_2 , whose equatorial intervals from middle thread are $+40^s.4$, $+14^s.2$, $-14^s.2$, $-40^s.6$ respectively. The notation and intervals of all the transit threads may be found on page 8 of this volume. On June 25, however, the places of bisection were $\frac{1}{2}(A_3 + B_1)$, C_2 , F_2 , $\frac{1}{2}(F_4 + G_1)$: on July 4, 5, and 13 to 22 inclusive a fifth bisection of Mars was made on the middle

transit thread: and on July 24 six bisections of Mars were made, one at the middle of each group of threads excepting the middle group; but these were found to be too many. The position of the prism was changed on each object during the transit over the middle group of threads and then left in its second position for the first bisections of the next object. Bright field illumination was used throughout, but the light was turned down at times as required for faint stars.

The south polar cap on Mars, so long as it remained a prominent object, was conspicuously seen during transit, and also the grand markings in the planet's surface were plainly visible.

The results of the observations in the case of the stars and the particular items of observation and reduction in the case of Mars are given in the following tables. Observations of Mars and of comparison stars were obtained on fifty-six nights, but those of one night, September 12, were extremely deficient, on account of clouds, and were reduced only for the absolute declination of Mars. In five cases where only one bisection was obtained, the observation of a star was rejected. In one case a bisection of a star was rejected which appeared to be in error by 5 div. as indicated by a corresponding second bisection especially noted at the time. In one case a recorded circle reading was assumed to be 2' different, and in two cases evident assumptions were made as to the thread of bisections. Such instances occurred only in connection with the comparison stars and are all specified in the reference notes following Table II. Otherwise no observations have been rejected or altered by assumed corrections.

In all cases of combination of results in the course of the reductions weights have been computed simply according to the number of observations entering into each result, and in no case has any other weight been used.

The nadir was observed and the barometer and thermometer read at the beginning and end of each night's work, and the barometer and thermometer were read also just before or after the observation of Mars.

The following table gives the observed positions of the instrument during the course of the observations:

1892.	Circle.	Obs'r.	Azimuth.	Level.	Collimation.
			<i>s.</i>	<i>s.</i>	<i>s.</i>
June 23.3	W	C	-0.46	+0.10	-0.03
27.3	W	C	-0.35	+0.21	+0.04
30.6	W	C	-0.34	+0.20	+0.05
July 4.2	W	C	-0.16	+0.22	+0.01
10.4	W	C	-0.17	+0.21	+0.06
13.6	E	C	-0.26	+0.24	-0.06
Aug. 31.2	W	C	-0.77	+0.44	.....
31.5	E	C	-0.65	+0.44	-0.05
Sept. 23.4	E	F	-0.48	+0.12	-0.07

EXPLANATION OF THE TABLES.

General Notes.—The headings indicate sufficiently the nature of the quantities given in each column.

The letters in the columns headed "Obs'r" are the initial letters of the observers' names and indicate which observer was at the telescope, the other reading microscopes. But a letter enclosed in parenthesis indicates that for that date the observer was alone.

Observations that differ in any way from the normal have reference numbers attached. The notes corresponding to the numbers will be found following each table.

The adopted value of a revolution of the zenith distance micrometer screw is $64''.596$ as in previous recent work with this instrument.

As regards such parts of the reductions as are common in method to the stars and Mars the explanations of Table II apply to Table III also.

The observed declinations should doubtless be corrected for periodic variation of the latitude; but it was not thought advisable to introduce such correction as yet.

TABLE I.—The circle setting for the nadir was $125^{\circ} 28'$, micrometer at 10.7 rev., Circle West; and $125^{\circ} 34'$, micrometer at 10.8 rev., Circle East. These settings brought under the microscopes, in both positions of the instrument, the system of lines beginning with $81^{\circ} 28'$. The microscopes were set 90° apart.

The microscopes were read twice on the nadir and the method of pointing was that of bringing each of the threads in turn to bisect the space between the images of the reflected threads.

The nadir was observed facing south, Circle West, and north, Circle East; except on July 13, when the observer faced south.

At first the cap holding the prism was removed before observing the nadir, but beginning with Aug. 13 it was generally left on with the prism turned out of the way.

On a few nights nadirs were observed when clouds prevented observations of the stars; but these are kept in the table with the other results.

The readings of barometer and thermometer given are interpolated values for the instant of Mars' transit. The thermometer is the standard, Green 515, exposed in the regular cage outside the north wall of the observing room. Its readings are corrected for scale error. The barometer is Green 5162 and was hung in the northwest corner of the observing room, except on Sept. 20 and 21 when it was hung in the Students' Observatory. From August 12 to August 26 inclusive the attached thermometer was removed and a small thermometer was hung on the wall close by as a substitute. The reduction of this to the attached thermometer was found to be $-0^{\circ}.6$. This was applied after Aug. 21. A comparison of this barometer with the standards of the U. S. Weather Bureau made by Prof. C. F. Marvin in the autumn of 1892 indicates no sensible correction to its readings.

TABLE II.—This presents the final observed declinations, for 1892.0, of the comparison stars as resulting from the observations of the separate dates and with all known corrections applied. The stars are given in the order of the three series as

contained in the list sent in the circular letter from the Naval Observatory. The Adopted Mean is one-half the sum of the simple means, Circle West and Circle East, and last of all is given the total number of observations on each star. The observations in the two positions of the instrument are pretty evenly balanced in number. Under each star's name are given its approximate right ascension and its magnitude as given in the Washington list. The course of reduction of the observations was as follows:

Refraction. The circle reading plus the micrometer equivalent was combined with the zenith point reading to give the zenith distance as the argument for refraction. The Pulkowa Tables (St. Petersburg 1870) were used. The sum of the logarithms from the barometer and thermometer tables was formed for each set of observed values and the value of this sum was interpolated directly for each star.

Reduction to the Meridian. This was computed by the formula $\mu = [6.7367] i^2 \tan \delta$, or by $\mu = [6.4357] I^2 \sin 2\delta$, where i is the equatorial interval from the meridian and I is the hour angle, both in seconds of time, and the numerical co-efficients are represented by their logarithms.

Inclination and Prism. Unsymmetrical observations were corrected for inclination of the micrometer thread. This correction was computed from all the bisections of stars on the extreme pair of transit threads, A_2 and G_2 , equidistant from the middle thread, before and after meridian passage respectively. Beginning with July 24 the micrometer differences were so combined as to eliminate any systematic error due to the presence or absence of the reversing prism. If Δi denotes the correction to Circle Reading for a bisection at transit thread A_2 on account of inclination and M_1 and M_2 denote the micrometer readings at A_2 and G_2 respectively, then we have $\Delta i = -\frac{1}{2}(M_2 - M_1)$ for all observations previous to July 28. Also let Δp denote the correction to Circle Reading for a bisection at A_2 when the prism is out of position, and M a normal corrected reading of the micrometer assumed to be the same in all cases. Then when the prism was moved into position between bisections we have

$$\begin{aligned} M &= M_1 + \Delta i + \Delta p, \\ M &= M_2 - \Delta i - \Delta p. \end{aligned}$$

When the prism was moved out of position we have

$$\begin{aligned} M &= M_1 + \Delta i - \Delta p, \\ M &= M_2 - \Delta i + \Delta p. \end{aligned}$$

If we distinguish by the subscripts i and o the differences of micrometer readings corresponding to motion of the prism into and out of position respectively we have from the preceding equations

$$\begin{aligned} \Delta i &= -\frac{1}{4} \left\{ (M_2 - M_1)_o + (M_2 - M_1)_i \right\}, \\ \Delta p &= +\frac{1}{4} \left\{ (M_2 - M_1)_o - (M_2 - M_1)_i \right\}. \end{aligned}$$

The resulting value of Δi from the entire series of observations is $-0''.0204 \tau$, for Circle West, the sign to be reversed for Circle East. τ is the equatorial interval from the middle thread in seconds of time and with its proper sign, plus before and minus after transit of the middle thread. The probable error of the numerical co-efficient is $\pm 0''.00026$. On July 1 Professor Comstock mounted the Bamberg univer-

sal instrument on the south collimator pier and found with its use the inclination of the zenith distance micrometer of the meridian circle to be $0''.028$ for one second of time, equatorial interval, and agreeing in sign with the result from star observations.

The reductions gave for Observer C $\Delta p = -0''.002 \pm 0''.073$ and for Observer F $\Delta p = +0''.134 \pm 0''.058$ where the signs of the corrections apply for Circle West and are to be reversed for Circle East. The declinations of stars observed by F previous to July 24, and a few defective observations later, were corrected accordingly.

The probable error of a single micrometer bisection of a star was computed from all the data employed for inclination, and was found to be $\pm 0''.26$ for Observer C and $\pm 0''.31$ for Observer F. In a number of cases the observations were difficult on account of the faintness of the stars seen through clouds.

Thread of bisection. Where required the observations were corrected for thread of bisection. The value of one-half the interval between the micrometer threads was computed from all the nadir observations and also from all the complete star observations. The latter were corrected for difference in the reduction to the meridian between the pair of transit threads A_2, G_2 and the pair C_2, E_2 . The former method gave $5''.58 \pm 0''.009$ for Observer C and $5''.55 \pm 0''.013$ for Observer F. The latter method gave $5''.54 \pm 0''.007$ for Observer C and $5''.53 \pm 0''.012$ for Observer F. The mean $5''.55$ was adopted, and is the same value as found during the last series of observations with this instrument, from Sept., 1891, to Feb., 1892. The distance between threads appears also to have been constant throughout the present series of observations. The threads are designated as a and b , the former being nearer the micrometer head. The correction then to Circle Reading is $-5''.55$ for thread a and $+5''.55$ for thread b ; in either position of the instrument.

Equator point. This was formed from the observed nadir point by the formula. Equator point = Nadir point $\pm 136^\circ 55' 23''.00$, where the upper sign applies for Circle West, the lower for Circle East, and the nominal latitude is $43^\circ 4' 37''.00$. The tabular correction to the declination, introduced in the following pages, refers the declinations finally to the adopted latitude of the instrument $43^\circ 4' 36''.72$ (Pub., W. O. Vol. VI, Part 3, p. 95.) The equator point was found for each star by simple interpolation between the values resulting from the nadir observations. The circle reading as affected by the preceding corrections was combined with the equator point to form the approximate declination.

Tabular correction. This is the sum of four corrections applying to declination; for latitude of the instrument, for sine flexure, cosine flexure, and division correction. It was taken from the table given on pp. 30, 31, of this volume.

Reduction to mean place. This was made by means of the Besselian star-numbers of the American Ephemeris and values of the Besselian star-constants computed from the data and formulae of the same authority.

Systematic differences. The mean results for declinations of the stars were compared for systematic difference between observers and between the two positions of the instrument. The results were as follows for difference between observers: Circle West, C — F = $+0''.53 \pm 0''.044$; Circle East, C — F = $-0''.33 \pm 0''.059$. For difference between Circle West and Circle East the results were for Observer C, W — E = $+0''.08 \pm 0''.076$;

for Observer F, $W - E = -0''.75 \pm 0''.034$. There are indications of systematic changes in the difference $W - E$ for Observer C in the course of the season which may account for his larger probable error. The only change made in consequence of these results was on account of the differences $W - E$ for Observer F. All of his observations were corrected by $+0''.38$ Circle West and $-0''.38$, Circle East.

The probable error of a single observed declination was computed separately for each star and with reference to the separate means, Circle West and Circle East. Arranging the stars in three groups with mean magnitudes of 5.4, 6.5, and 7.4 respectively, the corresponding means of the probable errors were for Observer C $\pm 0''.35$, $\pm 0''.38$, $\pm 0''.37$, and for Observer F $\pm 0''.45$, $\pm 0''.47$, $\pm 0''.42$. There appears to be no change therefore in the probable error for this range of magnitude, and $\pm 0''.40$ may be taken as a fair value as between the two observers, for stars within the limits of magnitude of this list and of the zenith distance, 66° ; the mean for this list.

TABLE III.—This gives the final observed declinations of Mars, together with the different items of observation and reduction that enter into them and a comparison with the tabular declinations of the American Ephemeris. For all items of reduction common to the stars and Mars the remarks preceding for Table II apply to Table III also. The headings indicate sufficiently the nature of the quantities contained in each column.

The fourth column shows the positions of the reversing prism during each observation. The letters *o* and *i* indicate the motion made with the prism, "out" or "in," between the first and last pair of bisections. Thus *o* means that the first bisections were made with the prism in place, the last bisections with the prism thrown out; and *i* indicates the reverse operation.

The quantities in the fifth to the tenth columns inclusive are derived and applied in the same manner as for the comparison stars.

The summation of numbers in different columns to form numbers in subsequent columns is as follows: The number in the ninth column subtracted from the sum of the numbers in the fifth to the eighth columns inclusive for Circle West, and the reverse operation for Circle East, gives an approximate declination. The declination added to the sum of the numbers in the tenth to the thirteenth columns inclusive gives the absolute declination in the fourteenth column. This last number added to that in the fifteenth column gives the final observed declination in the seventeenth column.

Defective Illumination. This was computed by the approximate formula

$$\Delta\delta = \frac{1}{2} q \cos^2 Q,$$

where $\Delta\delta$ is the correction of the observed declination, q is the maximum defect of illumination in seconds of arc, and Q is the position angle of the point of maximum defect of illumination. The quantities q and Q were taken from Marth's Ephemeris for Mars (Month. Not., R. A. S., LII, 398). $\Delta\delta$ is positive or negative according as we have $270^\circ < Q < 90^\circ$ or $90^\circ < Q < 270^\circ$. The correction was computed for ten day intervals and the particular values interpolated. A check computation was made, for three dates, June 20, Aug. 28, and Sept. 28, by the complete formula

$$\Delta\delta = \frac{1}{2} (1 - y') R,$$

where y' has the same significance as in the introductions to the Washington Observations and was computed by the formula there given, and R is the apparent semi-diameter of Mars. The results by this formula were the same as by the previous formula for the extreme dates and $0''.018$ less for Aug. 28.

Correction for Prism. This was deduced from all observations of Mars for which the reversing prism was used, that is, beginning with July 24. Of these Observer C had eleven observations in which the prism was moved from position *in* to position *out* and ten in which the reverse operation took place. Observer F had twelve observations under the former case and seven under the latter. The micrometer equivalent corresponding to the mean of the readings for each position of the prism was corrected for inclination of the micrometer thread and for motion of the planet, and a series of differences of these corrected readings formed, representing twice the effect of the employment of the prism. These differences were plotted for each observer separately. In both curves there is a rise of a little more than $1''$ from the extreme dates to the middle, except that in the curve for Observer F there is a marked fall only in the latter end of the curve, approaching Sept. 23. A curve representing the apparent diameter of Mars was plotted along with the above curves with a view to ascertaining whether the variation in the apparent magnitude of the planet affected the prism correction. The time of maximum diameter precedes by 15 days, roughly, the maximum of the curve for Observer C, while there is no marked maximum for Observer F.

For want of a better assumption the corrections previous to July 24 were taken to be the same as for the later dates when the planet had the same apparent magnitude of disk as on the dates in question; and the corrections for both observers were read from their respective curves accordingly. The approximate probable error of a single residual to the curve is $\pm 0''.22$ for Observer C with twenty-one observations, and $\pm 0''.34$ for Observer F with nineteen observations.

Corrections for systematic difference between Circle West and Circle East. This for Observer F, as deduced from a discussion of the mean results for comparison stars and already explained in connection with Table II is applied also to his observed declinations of Mars.

Systematic correction from comparison stars. This is designed to reduce the observed absolute declination of Mars for each date to a normal value which shall be free from systematic error peculiar to that date and arising from whatever cause. If δ_0 denotes the adopted mean declination of any star, and if, for a given date, δ denotes the observed mean declination of the star, n the number of stars observed, and $\Delta\delta$ the systematic correction, we have

$$\Delta\delta = \frac{1}{n} \sum (\delta_0 - \delta)$$

where δ_0 and δ may be taken directly from Table II and Σ is the usual sign of summation applied to all the n stars. The numbers in the fifteenth column were thus formed. The probable error of a value of $\Delta\delta$ from a single star was computed from all the observations and found to be $\pm 0''.29$ for Observer C and $\pm 0''.26$ for Observer F.

For any data on which all eight comparison stars were observed we have accordingly $\pm 0''.098$ as a mean value for the probable error of $\Delta\delta$ for that date.

Relative observed declination of Mars. This is formed by applying to the absolute declination of Mars on each date the systematic correction derived from the comparison stars observed on that date. If we let M and M' denote the absolute and relative declinations of Mars respectively and refer to the notation of the preceding paragraph, we have

$$M' = M + \Delta\delta = \frac{1}{n} \sum \delta_o + (M - \frac{1}{n} \sum \delta).$$

M' therefore is the observed declination of Mars relative to the mean of the final declinations of the stars observed on each date and depending on the adopted latitude $43^\circ 4' 36''.72$. Excepting therefore for changes in the adopted mean declinations of the comparison stars these relative declinations of Mars at the different stations are the quantities to be directly compared for the effect of parallax, provided the comparison stars involved were the same and were observed simultaneously, as between the two stations.

Ephemeris declination. This was interpolated from pp. 401-403 of the American Ephemeris and was corrected for parallax by the formula

$$\Delta\delta = 8''.848 \frac{\rho}{\Delta} \sin z'$$

where z' denotes the geocentric zenith distance.

Residual to curve. The corrections found by subtracting the ephemeris declinations from those in the preceding column were plotted for both observers together and a smooth curve drawn among the points. The quantities in the column headed *Residual to curve* are the corrections required to reduce the individual differences to the curve. It was evident from the curve that there is no sensible systematic difference between the observers. There were in a slight degree two maxima and two minima. The values of the ordinates for the points and also for the extreme dates were as follows:

June 25, Ordinate, $-0''.65$	Aug. 18, Maximum, $-1''.10$
July 12, Maximum, $-0''.20$	Sept. 11, Minimum, $-1''.80$
Aug. 5, Minimum, $-1''.35$	Sept. 23, Ordinate, $-1''.30$

It will be noticed that the intervals from maximum to maximum and from minimum to minimum are both 37 days. The approximate probable error of a single observed relative declination of Mars, as computed from the residuals to the curve given in the table, assuming the construction of the curve to be equivalent to the determination of six unknown quantities, is for Observer C $\pm 0''.34$, for Observer F $\pm 0''.20$.

TABLE I.

OBSERVED NADIRS, AND READINGS OF BAROMETER AND THERMOMETERS CORRESPONDING TO THE OBSERVATIONS OF MARS.

1892.	Circ.	Obs'r.	Sid. Hour.	Nadir.	Sid. Hour.	Nadir.	Ext. Ther.	Barom.	Att. Ther.
				125° 29'		125° 29'	Fahr.		Fahr.
			<i>h.</i>	"	<i>h.</i>	"	°	<i>in.</i>	°
June 25.6	W	C	20.6	28.38	22.0	27.93	59.0	29.175	61.5
27.6		F	20.5	27.24	22.0	28.14	56.7	28.790	60.8
29.6		C	20.4	27.05	21.9	28.29	56.6	29.020	59.8
30.6		F	20.5	28.10	22.0	28.99	53.0	29.168	59.0
July 4.6		C	20.6	28.42	21.9	28.26	59.2	29.298	62.1
5.6		F	20.5	28.83	22.0	28.69	60.6	29.457	64.3
6.6		C	20.6	29.82	21.9	29.12	59.6	29 510	63.7
7.6		F	20.6	28.65	....	.....	....	.....	....
11.6	W	F	20.6	29.47	22.0	28.43	69.1	29.060	71.2
				125° 35'		125° 35'			
13.6	E	C	20.7	19.82	22.0	18.80	66.0	29.095	69.3
15.5		F	20.6	20.26	22.0	20.28	56.5	29.267	62.5
16.5		C	20.6	19.59	22.0	20.30	59.7	29.260	63.1
17.5		F	20.6	20.38	22.0	20.52	60.0	29.141	64.6
20.5		F	20.6	18.23	22.0	18.14	66.6	29.156	69.3
21.5		C	20.6	18.08	22.0	17.55	73 1	29.060	75.1
22.5		F	20.6	18.20	22.0	16.94	73.8	29.035	76.8
24.5		C	20.6	17.89	22.0	17.60	70.6	29.014	73.9
25.5		F	20.6	18.30	22.0	17.78	76 2	29.114	78.5
26.5		C	20.6	17.85	22.0	17.30	76.6	29.030	78.5
29.5		(C)	20.1	19.77	21.7	19.43	60 8	29 264	67.0
30.5		F	20.1	18.11	21.7	18.99	61.0	29.184	65.1
Aug. 1.5		C	20.2	18.73	21.7	19.25	59.7	29.164	63.9
2.5		F	20.2	19.99	....	.....	....	.....	....
3.5	E	F	20.2	20.76	21.7	20.19	68.0	29.120	70.0
				125° 29'		125° 29'			
4.5	W	C	20.1	31.57	21.7	30.70	67.3	29.064	70.1
5.5		F	20.2	30.66	21.7	30.51	70.1	29.017	73.4
6.5		(C)	20.2	29.53	21.7	29 66	68.9	29.118	71.3
7.5		F	20.2	29.88	21.7	29.45	72.2	28.986	74.3

TABLE I.—Continued.

1892.	Circ.	Obs'r.	Sid. Hour.	Nadir.	Sid. Hour.	Nadir.	Ext. Ther.	Barom.	Att. Ther.
			<i>h.</i>	125° 29'	<i>h.</i>	125° 29'	Fahr.	<i>in.</i>	Fahr.
Aug. 10.5	W	C	20.1	29.27	21.7	29.92	68.4	29.065	75.1
11.5		F	20.1	30.69	21.6	30.48	65.2	29.272	71.0
12.5		C	20.0	31.09	21.6	30.90	65.0	29.243	70.3
13.5		(C)	20.9	31.32	21.6	31.26	66.8	29.173	71.4
14.5		F	20.0	31.00	21.6	31.33	71.0	29.221	73.7
15.4		C	20.1	31.07	21.6	30.34	66.6	29.247	70.7
16.4		(F)	20.0	31.49	21.9	30.93	68.9	29.200	72.4
17.4		(C)	20.1	31.70	21.6	31.33	69.4	29.119	72.8
18.4		F	20.1	32.23	21.6	32.85	65.9	29.195	72.1
19.4		C	20.1	31.83	21.6	32.33	57.1	29.245	65.5
21.4		F	20.1	32.41	21.6	32.78	66.2	29.198	69.6
24.4		C	20.1	30.20	21.7	30.04	63.3	29.030	66.9
25.4		F	20.1	29.91	21.7	29.91	65.7	29.184	67.4
27.4		C	20.0	29.74	21.7	30.53	64.4	29.150	69.6
28.4		(F)	20.1	30.41	....	.....	....	.....	...
29.4	W	F	20.1	30.59	21.7	29.80	68.8	28.865	71.1
				125° 35'		125° 35'			
31.4	E	C	20.1	12.51	21.7	10.99	54.9	29.275	60.6
Sept. 1.4		(F)	20.0	12.01	21.9	11.82	54.6	29.300	59.4
2.4		C	20.0	13.44	21.7	12.38	59.1	29.220	63.4
5.4		F	20.0	14.28	21.7	13.08	52.4	29.239	58.0
9.4		C	20.0	12.71	21.6	12.04	62.5	29.066	65.0
12.4		(F)	20.0	11.24	21.8	11.07	....	.....	....
14.4		F	20.0	13.00	21.7	11.62	50.0	29.000	53.3
15.4		C	20.1	13.25	21.6	12.75	55.7	29.133	58.0
16.3		F	20.0	13.00	21.6	12.38	55.3	29.256	58.3
17.3		C	20.1	13.05	21.6	12.79	60.3	29.150	62.0
19.3		F	20.0	12.61	21.6	11.42	53.9	29.238	59.9
20.3		C	20.1	12.70	21.6	11.48	56.6	29.111	60.0
21.3		(F)	20.1	12.09	21.7	11.73	65.1	29.024	70.1
22.3		C	20.1	11.66	21.6	11.40	70.5	28.999	71.6
23.3	E	F	20.1	12.52	21.6	12.20	73.7	29.056	75.3

TABLE II.

OBSERVED MEAN DECLINATIONS OF STARS.

First Series.

Name of Star			O. Arg. S. 20970	η Capricorni	27 Capricorni	φ Capricorni
R. A., Mag.			^h 20 ^m 50.6, 7.0	^h 20 ^m 58.2, 5.0	^h 21 ^m 3.4, 6.5	^h 21 ^m 9.5, 5.5
1892.	Circ.	Obs'r.	Mean Declination 1892 0.			
			° ' "	° ' "	° ' "	° ' "
June 25	W	C	-22 25 8.60	-20 16 52.93	-20 59 22.89	-21 5 58.34
27		F	9.34	54.56	23.29	58.75
29		C	8.46	53.32	22.50	58.20
30		F	9.03	53.33	22.93	58.99
July 4		C	8.99	53.69	23.30	58.60
5		F	9.42	54.12	23.25	59.06
6		C	9.14	53.85	23.03	58.25
11	W	F	10.23	54.56	23.50	58.77
Mean, Circle West.			9.15	53.80	23.09	58.62
July 13	E	C	9.51	54.74	23.71	59.08
15		F	9.38	53.50	22.99	57.75
16		C	9.77	54.53	23.78	59.04
17		F	9.82	54.47	23.89	59.77
20 ¹		F	10.20	53.80	23.48	59.32
21		C	9.74	54.69	23.41	59.47
22		F	8.77	54.26	.....	.....
24		C	10.06 ²	53.36	22.69	59.08
25		F	10.42	54.26 ³	23.15 ⁴	.....
26	E	C	8.72	53.95	22.93	58.65
Mean, Circle East.			9.64	54.16	23.34	59.02
Mean, Adopted.			-22 25 9.40	-20 16 53.98	-20 59 23.22	-21 5 58.82
No. of Observations.			18	18	17	16

TABLE II.—Continued.

Name of Star			Lacaille 8851	41 Capricorni	D. M.—20°, 6923	Lalande 42700
R. A., Mag.			^h 21 ^m 29.1, 6.0	^h 21 ^m 35.8, 5.8	^h 21 ^m 41.7, 7.5	^h 21 ^m 49.6, 7.2
1892.	Circ.	Obs'r.	Mean Declination 1892.0.			
			° ' "	° ' "	° ' "	° ' "
June 25	W	C	—23 56 3.46	—23 45 3.18	—20 4 37.86	—21 38 60.80
27		F	4.00	4.96	37.84	60.18
29		C	3.62	3.96	37.46	60.10
30		F	4.78	3.43	37.65	59.85
July 4		C	4.32	4.22	38.23	60.02
5		F	4.18	4.21	37.87	60.19
6		C	4 68	3.86	37.75	60.31
11	W	F	4.88	4.24	.....	60.80
Mean, Circle West.			Continued, 2d series.	4.01	37.81	60.28
July 13	E	C	4.96	4.81	37.89	60.12
15		F	3.64	3.36	36.10 ⁶	59.95
16		C	5.43	5.46	39.10	60.74
17		F	5.46	5.29	38.34	60.79
20 ¹		F	4.94	4.93	38.32	60.94
21		C	4.63	3.95	37.29	59.60
22		F	4.27	.....	37.53 ⁷	.....
24		C	4.37	3.96	37.62	61.03
25		F	....	3.96 ⁵	.....	.....
26	E	C	3.95	4.57	38.10	60.50
Mean, Circle East.			Continued, 2d series.	4.48	37.81	60.46
Mean, Adopted.			Continued, 2d series.	—23 45 4.24	—20 4 37.81	—21 39 0.37
No. of Observations.				17	16	16

TABLE II.—Continued.

Second Series.

Name of Star			Lacaille 8463	Lacaille 8506	17 Capricorni	Lacaille 8612
R. A., Mag.			^h 20 ^m 23.2, 6.2	^h 20 ^m 31.7, 7.0	^h 20 ^m 39.9, 5.9	^h 20 ^m 46.7, 7.0
1892.	Circ.	Obs'r.	Mean Declination 1892.0.			
			° ' "	° ' "	° ' "	° ' "
July 29	E	C)	—22 44 56.41 ⁸	—24 36 14.45	—21 54 20.88	—24 11 13.52
30		F	57.45	16.41	22.21	14.92
Aug. 1		C	55.03	14.61	20.68	13.06
3	E	F	56.49	15.67	22.33	14.73
Mean, Circle East.			Continued, 3d series.	Continued, 3d series.	Continued, 3d series.	14.06
Aug. 4	W	C	56.65	15.96	21.85	15.13
5		F	57.21	16.59	22.31	14.89
6		(C)	57.47 ⁹	15.70 ¹⁰	22.41	14.31
7		F	57 46	.....	22.78 ¹¹	.....
10	W	C	56.84	16.82	23.09	14.66
Mean, Circle West.			Continued, 3d series.	Continued, 3d series.	Continued, 3d series.	14.75
Mean, Adopted.			Continued, 3d series.	Continued, 3d series.	Continued, 3d series.	—24 11 14.40
No. of Observations.						8

Name of Star			Lacaille 8813	Lacaille 8832	Lacaille, 8851	O. Arg. S. 21562
R. A., Mag.			^h 21 ^m 19.6, 6.0	^h 21 ^m 24.2, 7.8	^h 21 ^m 29.1, 6.0	^h 21 ^m 35.4, 7.8
1892.	Circ.	Obs'r.	Mean Declination, 1892.0.			
			° ' "	° ' "	° ' "	° ' "
July 29	E	(C)	—24 17 12.00	—25 39 55.97	—23 56 4.92	—22 25 6.78
30		F	13.20	55.05	4.59	6.73
Aug. 1		C	12.03	55.39	3.80	6.33
3	E	F	13.16	.....	3.98	6.55
Mean, Circle East.			12.62	55.47	4.53	6.60

TABLE II.—Continued.

Name of Star			Lacaille 8813	Lacaille 8832	Lacaille 8851	O. Arg. S. 21562
R. A., Mag.			^h 21 ^m 19.6, 6.0	^h 21 ^m 24.2, 7.8	^h 21 ^m 29.1, 6.0	^h 21 ^m 35.4, 7.8
Aug. 4	W	C	13.09	55.60 ¹²	4.01	7.03 ¹⁶
5		F	13.09	56.62 ¹³	....	6.70 ¹⁷
6		(C)	12 46	56.68 ¹⁴	5.33	7.82
7		F	.....	.....	....	....
10	W	C	12.29	56.02	4.42 ¹⁵	6.59
Mean, Circle West.			12.73	56.23	4.33	7.04
Mean, Adopted.			—24 17 12.68	—25 39 55 85	—23 56 4.43	—22 25 6.82
No. of Observations.			8	7	24	8

Third Series.

Name of Star			O. Arg. S. 20429	Lacaille 8463	Lacaille 8506	17 Capricorni
R. A., Mag.			^h 20 ^m 15.1, 7.0	^h 20 ^m 23.2, 6.2	^h 20 ^m 31.7, 7.0	^h 20 ^m 39.9, 5.9
1892.	Circ.	Obs'r.	Mean Declination, 1892.0.			
Aug. 11	W	F	—23 49 3.09	—22 44 55.45	—24 36 14.54	—21 54 20.53
12		C	4.12 ¹⁸	56.53 ²²	14.38	22.44
13		(C)	....	57.03	15.87	22.34
14		F	....	56.97	16.62	23.26
15		C	5.11	57.77	16.08	23.03
16		(F)	5.22	57.44	15.96	22.79
17		(C)	4.40	57.18	14.90	21.65
18		F	4.28	56.56	15.36	21.39
19		C	4.42	56.97	15.39	21.82
21		F	3.59	56.48	15.93 ²⁵	22.14 ²⁷
24		C	5.21	56.88	15.81	22.34
25		F	5.02	57.13	15.74	22.11
27		C	....	55.71	15.13 ²⁶	21.61
29	W	F	4 39	57.18	16.14	22.48
Mean, Circle West.			4.44	56.89	15.72	22.23

TABLE II.—Continued.

Name of Star			O. Arg. S. 20429	Lacaille 8463	Lacaille 8506	17 Capricorni
R. A., Mag.			^h ₂₀ ^m _{15.1} , 7.0	^h ₂₀ ^m _{23.2} , 6 2	^h ₂₀ ^m _{31.7} , 7.0	^h ₂₀ ^m _{39.9} , 5.9
Aug. 31	E	C	4.50	55.72	15.05	20.91
Sept. 1		(F)	4.13	55.77	15.79	21.30
2		C	4.31	56.24	15.31	21.30
5		F	4.79	57.19	.....	22.37
9		C	5.04	56.87	15.84	21.50
14		F	3.15	55.36	14.54	20.70
15		C	5.18	56.98	15.91	21.87
16		F	3.88	56.23	15.73	21.28
17		C	6.49 ¹⁹	57.65	17.44	22.75
19		F	4.94	56.63 ²³	16.61	21.56
20		C	4.80	56.61	15.47	21.32
21		(F)	6.01 ²⁰	57.78	16.66	23.22
22		C	6.39 ²¹	57.73 ²⁴	17.34	23.01 ²⁸
23	E	F	....	58.46	.....	22.88
Mean, Circle East.			4.89	56.70	15.80	21.78
Mean, Adopted.			—23 49 4.66	—22 44 56.80	—24 36 15.76	—21 54 22.00
No. of Observations.			24	37	34	37

Name of Star			Lacaille 8734	Lalande 41404	ζ Capricorni	37 Capricorni
R. A., Mag.			^h ₂₁ ^m _{7.0} , 7.0	^h ₂₁ ^m _{14.5} , 7.5	^h ₂₁ ^m _{20.5} , 4 0	^h ₂₁ ^m _{28.8} , 6 2
1892.	Circ.	Obs'r.	Mean Declination, 1892.0.			
Aug. 11	W	F	—25 17 20.22	—22 50 36.73	—22 52 43.23	—20 33 55.39
12		C	.....	36.35	43.06	56.09
13		(C)	20.29	36.86	.....	55 73
14		F	19.92	36.57	42.96	55.53
15		C	20.88	37.28	43.95	55.40
16		(F)	20.50	37.36	44.36	55.92
17	W	(C)	20.34	37.36	43.53	55.76

TABLE II.—Continued.

Name of Star R. A., Mag.			Lacaille 8734 ^h 21 ^m 7.0, 7.0	Lalande 41404 ^h 21 ^m 14 5, 7.5	ζ Capricorni ^h 21 ^m 20.5, 4.0	37 Capricorni ^h 21 ^m 28.8, 6.2
1892.	Circ.	Obs'r.	Mean Declination, 1892.0.			
Aug. 18	W	F	19.62	36.25	43.40	54.50
19		C	18.85	36.03	43.07	54.60
21		F	20.71	.....	.....	.....
24		C	20.71	36.74	44.03	55.85
25		F	20.21	36.67	43.46	55.39
27		C	19.56	36.14	42.34	54.61 ³⁶
29	W	F	20.92	36.99	43.66	56.16
Mean, Circle West.			20.21	36.72	43.42	55.46
Aug. 31	E	C	19.76	35.70	42.57	55.29
Sept. 1		(F)	20.57	36.40	43.18	55.55
2		C	19.86	36.81	43.44	56.00
5		F	20.30	37.71	43.48	55.25
9 ²⁹		C	20.36 ³⁰	36.12 ³³	43.34	55.32 ³⁷
14		F	18.61	35.40	42.19	54.24
15		C	20.57	37.10	43.17	55.54
16		F	20.47	36.97	43.50	55.70
17		C	21.09 ³¹	37.35	43.64	55.90
19		F	20.19	36.53	42.89	55.47
20		C	20.32	36.20	43.11	55.29
21		(F)	21.21 ³²	37.32 ³⁴	43.99	56.42
22		C	.....	.....	43.92 ³⁵	56.57
23	E	F	.....	.....	44.49	56.81 ³⁸
Mean, Circle East.			20.28	36.63	43.35	55.67
Mean, Adopted.			-25 17 20.24	-22 50 36.68	-22 52 43.38	-20 33 55.56
No. of Observations.			25	25	26	27

NOTES TO TABLE II.

General Note.—Capital letters denote the transit threads at which bisections were made, and the letters progress with the apparent motion of a star at upper culmination in both positions of the instrument. Small letters denote the micrometer threads with which bisections were made; *a* the thread nearer the micrometer head.

- (1). July 20. Observer C at microscopes very tired and reading poorly.
- (2). $C_2 E_2$; *b*. (3). $A_2 C_2 G_2$; *a b a*. (4). $\frac{1}{2}(B_2 + B_3)$, G_2 ; *b* assumed.
- (5). Correction of 2' assumed to recorded setting.
- (6). $\frac{1}{2}(B_2 + B_3)$?, $\frac{1}{2}(F_2 + F_3)$; first bisection probably on C_2 and so reduced. Correction to declination = $-0''.12$ if record be followed.
- (7). Very faint. (8). $B_1 F_4$; *a*. (9). $C_2 F_4$; *a*. Through clouds; uncertain.
- (10). $A_2 C_2 G_2$; *a b a*. Through clouds; uncertain.
- (11). Faint on last two bisections; apparent magnitude 7.5.
- (12). $A_2 C_2 G_2$; *a b a*. Sky hazy, all stars faint.
- (13). A_2 , second bisection at equatorial interval $-1^m 17^s$; *a* assumed. Very faint.
- (14). *a b b b*. Very faint. (15). $C_2 E_2$; *a*.
- (16). First bisection made with backward motion of micrometer.
- (17). $A_2, C_2, \frac{1}{2}(F_2 + F_3), G_2$. Faint, poor observation. (18). Almost invisible at last bisection.
- (19). Extremely faint. (20). $B_4, \frac{1}{2}(C_3 + D_1), E_2, G_2$. (21). Faint. (22). $A_2 C_2 E_2$.
- (23). $A_2 E_2 G_2$; *a b a*. A bisection was made on C_2 which appeared abnormal, as noted at the close of the observation, and was rejected in the reduction: if retained, the resulting correction to the declination for the date, as given above, would be $+0''.48$.
- (24). $A_2 E_2 G_2$; *a b a*. (25). $C_2 G_2$; *a b*. (26). $D_2 E_2 G_2$; *a a b*.
- (27). $A_2 C_2 E_2 G_3$; *a b b b*. Last bisection hastily made.
- (28). $A_2 C_2 F_2 G_2$. (29). All observations through haze. (30). Faint, difficult.
- (31). $\frac{1}{2}(C_3 + D_1), G_2$; *a* assumed. Observation doubtful. (32). Faint, thick haze.
- (33). Very faint, at limit of visibility. (34). $A_2 C_2 E_2 G_3$. Very faint.
- (35). Last bisection later than G_3 by interval $G_3 - G_2$.
- (36). *a b b b*. (37). Very faint.
- (38). $A_2 D_1 E_3$, a fourth bisection at equatorial interval $-1^m 12^s$.

TABLE III.

OBSERVED DECLINATIONS OF MARS, AND RESULTING

1892.	Circle.	Observer.	Motion of Prism.	Circle Reading.	CORRECTION TO CIRCLE READING.			CORR. TO DEC.		
					Micrometer Equivalent.	Refraction	Reduction to Meridian.	Equator Point.	Tabular Correction.	Corr. for Def. Illum.

First Series.

June	25.6	W	C	242 10 4.40	+1 31.08	-1 49 81	+0.14	262° 24' 51.13	+0.72	-0.03
	27.6		F	6 2.38	+0 45.60	1 49.22	0.19	50.75	0.70	0.02
	29.6		C	242 0 0.06	+1 10.15	1 50.57	0.19	50.84	0.68	0.02
	30.6		F	241 58 2 67	-0 0.52	1 52.21	0.19	51.66	0.65	0.02
July	4.6		C	42 3.28	+1 8.54	1 52 49	0.15	51.32	0.60	0.02
	5.6		F	38 3.78	+0 54.13	1 53.11	0.19	51.74	0.57	0.01
	6.6		C	34 3.55	+0 29.71	1 53.92	0.15	52.42	0.55	0.01
	11.6	W	F	241 8 3.16	+1 24.10	-1 52.12	+0.19	51.88	+0.46	-0.01
								348° 39'		
	13.6	E	C	10 4 2 83	+2 26.89	+1 53.88	-0.15	56.27	-0.84	-0.00
	15.5		F	16 2.02	+2 11.26	1 57.77	0.20	57.27	0.82	0.00
	16.5		C	24 4.13	+0 15.70	1 57.55	0.16	56.99	0.80	0.00
	17.5		F	32 3.40	-1 32.56	1 57.52	0.21	57.46	0.79	0.00
	20.5		F	48 1.14	+1 30.76	1 57.72	0.16	55.18	0.74	0.00
	21.5		C	10 54 3.27	+1 58.60	1 56 41	0.17	54.82	0.71	0.00
	22.5		F	11 0 14.62	+2 15.53	1 56.68	0.17	54.57	0.69	0.00
	24.5		C	o 16 4.74	-0 36.01	1 58.52	0.19	54.74	0.65	0.00
	25.5		F	o 20 3.74	+1 53.81	1 58.26	0.21	55.04	0.63	+0.01
	26.5	E	C	o 11 26 3.18	+2 19.53	+1 58.44	-0.21	54.58	-0.60	+0.01

Second Series.

								348° 39'		
July	29.5	E	(C)	<i>i</i> 11 44 2.74	+3 3.27	+2 4.91	-0.21	56.54	-0.55	+0.01
	30.5		F	<i>i</i> 11 52 8.22	+1 2.08	2 5.14	0.21	55.71	0.54	0.01
Aug.	1.5		C	<i>i</i> 12 4 3.92	+0 45.47	2 6.51	0.21	56 04	0.53	0.01
	3.5	E	F	<i>o</i> 12 14 3.46	+1 49.62	+2 5.35	-0.22	57.44	-0.51	+0.02

TABLE III.

CORRECTIONS TO THE AMERICAN EPHEMERIS.

CORR. TO DEC.		Observed Absolute Declination.			Syst. Corr. from Comp. Stars.	Number of Stars.	DECLINATION.		Residual to Curve.	Seeing on Scale of 5.	1892.
Corr. for Prism.	Correction Diff. W-E						Relative Observed.	Ephemeris.			
First Series.											
"	"	"	"	"	"	"	"	"	"	"	"
0.00		-20 15 4.63	-0.53	8	- 5.16	- 4.88	-0.30	4.5	June	25.6	
+0.20	+0.38	19 50.54	+0.08	8	50.46	50.25	-0.30	2.5		27.6	
+0.05		25 30.30	-0.58	8	30.88	30.02	+0.35	3.		29.6	
+0.30	+0.38	28 40.22	-0.28	8	40.50	40.03	0.00	2.5		30.6	
+0.25		43 31.01	-0.11	8	31.12	30.70	+0.05	4.	July	4.6	
+0.50	+0.38	47 45.31	0.00	8	45.31	45.09	-0.08	4.		5.6	
+0.35		20 52 12.04	-0.18	8	12.22	11.67	+0.25	4.		6.6	
+0.50	+0.38	-21 17 15.22	+0.36	7	14.86	14.86	-0.20	4.5		11.6	
+0.50		-21 28 27.56	+0.32	8	-27.24	-27.54	-0.50	4.		13.6	
+0.55	-0.38	40 14.23	-0.70	8	14.93	14.50	+0.18	3.		15.5	
+0.60		46 20.43	+0.70	8	19.73	19.19	+0.22	3.		16.5	
+0.55	-0.38	21 52 31.31	+0.70	8	30.61	30.23	+0.05	4.		17.5	
+0.50	-0.38	22 11 34.90	+0.46	8	34.44	33.78	+0.10	3.		20.5	
+0.60		18 3.40	+0.06	8	3.34	1.91	+0.88	5.		21.5	
+0.55	-0.38	24 32.61	-0.20	4	32.81	31.68	+0.42	3.5		22.5	
		37 32.97	-0.01	8	32.98	32.06	+0.05	3.5		24.5	
	-0.38	44 1.56	+0.24	4	1.32	0.49	0.00	3.		25.5	
		-22 50 26.95	-0.11	8	27.06	26.09	0.00	4.		26.5	
Second Series.											
		-23 9 14.71	-0.48	8	-15.19	-15.37	-1.20	2.	July	29.5	
	-0.38	15 20.43	+0.24	8	20.19	18.90	+0.15	2.5		30.5	
		27 0.17	-0.98	8	1.15	59.96	-0.05	3.5	Aug.	1.5	
	-0.38	38 1.64	0.00	7	1.64	59.87	+0.40	2.5		3.5	

TABLE III.—Continued.

1892.	Circle.	Observer.	Motion of Prism.	Circle Reading.	CORRECTION TO CIRCLE READING.			CORR. TO DEC.		
					Micrometer Equivalent.	Refraction.	Reduction to Meridian.	Equator Point.	Tabular Correction	Corr. for Def. Illum.
Aug. 4.5	W	C	<i>i</i>	238 42 3.88	+1 41.42	-2 5.89	+0.22	262° 24' 54.03	+0.36	+0.02
5.5		F	<i>o</i>	38 1.42	+0 42.76	2 5.37	0.22	53.31	0.36	0.03
6.5		(C)	<i>i</i>	34 1.05	-0 1.69	2 6.59	0.22	52.61	0.37	0.03
7.5		F	<i>o</i>	28 1.22	+1 25.52	2 5.64	0.22	52.63	0.37	0.03
10.5	W	C	<i>i</i>	238 18 7.04	-0 37.47	-2 8.13	+0.22	52.64	+0.36	+0.04

Third Series.

Aug. 11.5	W	F	<i>i</i>	238 12 4.21	+2 1.38	-2 10.24	+0.22	262° 24' 53.56	+0.36	+0.04
12.5		C	<i>o</i>	10 4.77	+0 50.90	2 10.48	0.22	53.99	0.35	0.04
13.5 ¹		(C)	<i>i</i>	8 2.50	+0 0.97	2 10.00	0.22	54.32	0.35	0.04
14.5		F	<i>o</i>	4 1.98	+1 26.88	2 9.42	0.22	54.18	0.35	0.05
15.4		C	<i>o</i>	238 2 2.72	+1 11.25	2 10.90	0.22	53.65	0.35	0.05
16.4		(F)	<i>i</i>	237 58 4.55	+3 11.79	2 10.31	0.22	54.24	0.34	0.05
17.4		(C)	<i>i</i>	58 0.91	+1 38.57	2 10.00	0.22	54.50	0.34	0.06
18.4		F	<i>o</i>	58 2.29	+0 19.38	2 11.35	0.22	55.58	0.34	0.06
19.4		C	<i>o</i>	56 5.85	+1 18.29	2 14.08	0.22	55.11	0.34	0.06
21.4		F	<i>i</i>	54 2.48	+2 17.27	2 11.56	0.23	55.59	0.34	0.06
24.4		C	<i>i</i>	56 6.08	+1 3.43	2 11.46	0.23	53.13	0.34	0.07
25.4		F		56 7.84	+1 56.53	2 11.45	0.23	52.91	0.34	0.07
27.4		C	<i>i</i>	237 58 4.55	+2 48.41	2 11.29	0.23	53.10	0.35	0.07
29.4	W	F	<i>o</i>	238 4 5.58	+0 44.44	-2 8.49	+0.23	53.27	+0.35	+0.08
31.4	E	C	<i>o</i>	12 54 5.31	+0 28.94	+2 13.45	-0.22	348° 39' 48.89	-0.48	+0.08
Sept. 1.4 ²		(F)	<i>o</i>	50 5.46	+1 27.20	2 13.32	0.17	48.94	0.48	0.08
2.4		C	<i>o</i>	46 6.92	+2 10.71	2 11.40	0.22	49.98	0.48	0.08
5.4		F	<i>i</i>	36 6.07	+0 40.95	2 12.08	0.22	50.76	0.48	0.08
9.4		C		16 3.84	+1 54.72	2 6.73	0.22	49.40	0.51	0.08
12.4 ³		(F)	<i>o</i>	12 0 6.22	+1 15.83	2 5.63	0.22	48.16	0.53	0.09
14.4	E	F	<i>o</i>	11 48 5.78	+1 4.21	2 6.81	0.21	49.37	0.55	0.09

TABLE III.—Continued.

CORR. TO DEC.		Observed Absolute Declination.	Syst. Corr. from Comp. Stars.	Number of Stars.	DECLINATION.		Residual to Curve.	Seeing on Scale of 5.	1892.
Corr. for Prism.	Correction Diff. W—E.				Relative Observed.	Ephemeris.			
	"	" " "	"		"	"	"		
		—23 43 14.02	+0.07	8	—13.95	—12.27	+0.25	4.	Aug. 4.5
	+0.38	48 13.51	+0.44	7	13.07	11.64	+0.05	5.	5.5
		52 59.22	+0.43	8	58.79	57.37	+0.02	4.	6.5
	+0.38	23 57 30.53	+0.72	2	29.81	28.67	—0.10	4.	7.5
		—24 9 30.58	+0.25	8	30.33	29.38	—0.28	3.	10.5
<i>Third Series.</i>									
	+0.38	—24 12 57.21	—0.74	8	—57.95	—56.67	+0.08	4.	Aug. 11.5
		16 8.19	—0.27	7	8.46	6.53	+0.80	4.	12.5
		19 0.24	+0.18	6	0.06	58.88	+0.05	3.	13.5
	+0.38	21 33.74	+0.20	7	33.54	33.08	—0.62	3.5	14.5
		23 49.96	+0.55	8	49.41	48.79	—0.42	4.5	15.4
	+0.38	25 47.22	+0.56	8	46.66	45.87	—0.22	2.5	16.4
		27 24.40	+0.01	8	24.39	24.05	—0.72	3.	17.4
	+0.38	28 44.26	—0.46	8	44.72	43.19	+0.45	3.5	18.4
		29 44.43	—0.49	8	44.92	43.15	+0.72	2.	19.4
	+0.38	30 46 39	—0.12	5	46.51	45.03	+0.35	4.	21.4
		29 54.44	+0.31	8	54.13	53.09	—0.05	3.5	24.4
	+0.38	28 58.97	+0.08	8	58.89	57.51	+0.12	3.	25.4
		26 10.78	—0.76	7	11.54	10.17	+0.12	4.	27.4
	+0.38	22 10.70	+0.36	8	10.34	9.34	—0.30	4.	29.4
		—24 16 58.99	—0.70	8	—59.69	—57.75	+0.50	2.5	31.4
	—0.38	13 57.21	—0.30	8	57.51	56.22	—0.10	3.	Sept. 1.4
		24 10 39.23	—0.23	8	39.46	38.00	—0.10	4.	2.4
	—0.38	23 59 8.90	+0.25	7	8.65	6.99	0.00	2.5	5.4
		40 16.10	—0.09	8	16.19	14.21	+0.22	3.5	9.4
	—0.38	23 40.12	.....	..	.....	39.03	.....	4.	12.4
	—0.38	11 28.06	—1.36	8	29.42	27.77	—0.05	3.	14.4

TABLE III.—Continued.

1892.	Circle.	Observer.	Motion of Prism.	Circle Reading.	CORRECTION TO CIRCLE READING.			CORR. TO DEC.		
					Micrometer Equivalent.	Refraction.	Reduction to Meridian.	Equator Point.	Tabular Correction.	Corr. for Def. Illum.
Sept. 15.4	E	C	<i>o</i>	° ' " 11 42 6.04	' " +0 43.92	' " +2 5.29	" -0.21	" 50.62	" -0.55	" +0.09
16.3		F	<i>i</i>	34 4.00	+2 8.42	2 5.27	0.21	49.69	0.56	0.09
17.3		C	<i>o</i>	28 5.35	+1 22.88	2 2.92	0.21	49.92	0.59	0.09
19.3		F	<i>o</i>	14 5.35	+1 6.53	2 3.50	0.21	49.00	0.65	0.09
20.3		C	<i>o</i>	11 6 4.64	+1 45.42	2 1.62	0.21	49.09	0.67	0.09
21.3		(F)	<i>i</i>	10 58 4.14	+2 15.14	1 58.50	0.20	48.91	0.70	0.09
22.3 ⁴		C	<i>i</i>	50 3.58	+2 31.54	1 56.47	0.32	48.52	0.72	0.09
23.3 ⁵	E	F	<i>o</i>	10 42 6.05	+2 32.32	+1 55.24	-0.20	49.35	-0.76	+0.09

TABLE III.—Continued.

CORR. TO DEC.		Observed Absolute Declination.	Syst. Corr. from Comp. Stars.	Number of Stars.	DECLINATION.		Residual to Curve.	Seeing on Scale of 5.	1892.
Corr. for Prism.	Correction Diff. W-E.				Relative Observed.	Ephemeris.			
	"	° ' "	"		"	"	"		
		-23 5 5.48	+0.16	8	- 5.32	- 3.68	-0.05	3.5	Sept. 15.4
	-0.38	22 58 28.64	-0.16	8	28.80	27.28	-0.05	4.	16.3
		51 41.52	+0.90	8	40.62	38.79	+0.20	3.5	17.3
	-0.38	37 27.11	-0.03	8	27.14	26.15	-0.52	4.	19.3
		30 2.96	-0.24	8	3.20	2.28	-0.52	4.	20.3
	-0.38	22 29.66	+0.94	8	28.72	26.93	+0.40	4.	21.3
		14 43.22	+1.13	6	42.09	40.28	+0.50	3.5	22.3
	-0.38	-22 6 45.11	+1.22	4	43.89	42.63	+0.05	3.	23.3



NOTES TO TABLE III.

- (1). Aug. 13.5. Both sets of microscope readings made after micrometer pointings.
- (2). Sept. 1.4. Bisections at transit threads C_2 , E_2 , G_2 . Correction to Circle Reading for inclination, $-0''.28$, and for prism, $-0''.16$; both corrections applied.
- (3). Sept. 12.4. Clouds. Only one comparison star obtained in full. Mars dim from clouds. Microscopes read only once, after micrometer settings.
- (4). Sept. 22.4. Bisections at transit threads A_2 , D_1 , E_3 , and at $-1^m 0^s$ equatorial interval. Correction to Circle Reading for inclination, $-0''.16$; applied. Clouds.
- (5). Sept. 23.3. Through light clouds.

ERRATA.

A comparison of the preceding pages with the original compilations of the results of observation has furnished the following list of errata:

- Page 28. Line 13. Insert = before the term $\Delta\alpha_s$.
68. No. 337. For Aug. 28 read Aug. 23.
72. " 340 S. P. 1889 Mar. 19, insert, Observer B.
76. " 344 S. P. For 1889, Aug. 30, read Apr. 30.
77. " 16. Insert Circle W.
78. " 18. 1889 Aug. 4. Δ Dec. = -0.3.
- 80, 81. " 19 S. P. First Year. For 1889 read 1888.
82. " 20. Circle W. For 1889 read 1888.
89. " 34. Insert 1891 before Dec. 10.
91. " 35. 1891 Dec. 23. For Δ Dec. read +1.7.
93. " 355. Before 13 insert Oct.
93. " 356. Before 13 insert Oct.
108. " 68. Second column. Before 23 insert Dec.
116. " 82. Insert ζ before Aurigae.
116. " 84. For 1889 read 1888.
117. " 373 S. P. Corr. to Δ Dec. Circle E read -1.10.
125. " 382. Minutes of tabular δ . For 16 read 46.
137. " 118. 1888 Nov. 10. Δ R. A. For +0.03 read -0.03.
141. " 404 S. P. For 404 read 401.
156. " 141. Seconds of tabular R. A. For 16.978 read 16.798.
166. " 433 S. P. 1888 Aug. 16. Δ R. A. For .03 read -.03.
166. " 433 S. P. 1889 Aug. 5. Insert Observer B.
173. " 165. 1889 Mar. 23. Δ Dec. For +0.1 read -0.1.
173. " 165. Mean Δ Dec. For -1.25 read -1.28.
174. " 168. 1889 Apr. 13. Δ R. A. For +.13 read +.18.
174. " 168. Mean Δ R. A. For +0.034 read +0.040.
178. " 171 S. P. 1887 Nov. 3. Δ Dec. For -2.8 read -2.2.
178. " 171 S. P. Mean Δ Dec. For -1.42 read -1.28.
182. " 587. Minutes of tabular R. A. For 9 read 19.
184. " 453 S. P. 1889 Sept. 20. Δ Dec. For -0.5 read -0.4.
184. " 453 S. P. Mean Δ Dec. For +0.48 read +0.50.
188. " 184. 1889 June 12. Insert Observer E.
208. " 226. Insert η before Draconis.
210. " 231. For May 39 read May 30.
211. " 478. Mean Δ Dec. For +0.95 read -0.95.
212. " 235. 1889 June 25. For Δ R. A. read +.05.
214. " 481. For χ read x .
222. " 256 S. P. 1889. For June read Jan.
250. " 510 S. P. 1889. For Aug. read Apr.
256. " 516. Insert - before Corr. 0.89 *Circle East*.
267. " 529. 1888 Aug. 17. Δ Dec. For +0.3 read +0.5.
267. " 529. Mean Δ Dec. For +0.11 read +0.14.
279. " 14. In last column insert 9.

Page 282.	No. 51.	Δ Dec. For -1.06 read -0.52 .
282.	" 59.	Obs. in declination. For 10 read 13.
285.	" 383.	Δ Dec. For $+0.21$ read $+0.08$.
286.	" 116 S. P.	Δ Dec. For $+0.14$ read $+0.50$.
287.	" 125.	Δ Dec. For $+0.04$ read -0.04 .
287.	" 416.	Δ R. A. For $-.166$ read $-.116$.
288.	" 429.	Δ R. A. For $-.086$ read $-.090$.
289.	" 165.	Δ Dec. For -0.94 read -0.96 .
289.	" 167.	For Δ R. A. read $-.008$.
290.	" 168.	Δ R. A. For $+.005$ read $+.008$.
290.	" 170.	Δ R. A. For $+.046$ read $+.040$.
290.	" 171 S. P.	Δ Dec. For $+1.20$ read $+1.11$.
290.	" 448 S. P.	Δ Dec. For -0.34 read $+0.34$.
291.	" 453 S. P.	Δ Dec. For $+0.51$ read $+0.50$.
291.	" 182.	Δ R. A. For $-.020$ read $-.022$.
292.	" 463.	Name of star. For 21 read 221.
294.	" 478.	Δ Dec. For $+0.57$ read -0.38 .
294.	" 248.	Δ R. A. is the correction to Ast. Jour. No. 246.
295.	" 252.	Δ Dec. For $+1.50$ read $+0.46$.
295.	" 491 S. P.	Name of star. For 2630 read 2640.
296.	" 498.	Δ R. A. For $-.030$ read $-.040$.
298.	" 518.	For Δ R. A. read $+.008$.
306.	Line 25.	For July 28 read July 24.
310.	Line 1.	For data read date.
315.	Lac. 8813, July 30.	For 13.20 read 13.30.

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